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THE

NORTHWESTERN MILLER

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REMEMBER

Our wish is to please you as nearas possible to your liking, so as to induce you to continue to favor us with your orders.

WILLFORD & NORTHWAY,

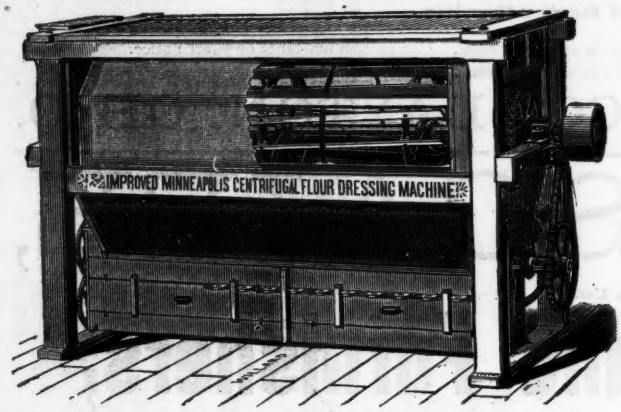
MILL BUILDERS AND FURNISHERS.

IT WAS A BROTH OF AN IRISH LAD THAT SAID,

"Have a Good Time While You Live, for Faith its Long Enough You'll Be Dead."

PLANS

And estimates furnished for complete new Flour Mills, or for remodeling Stone Mills to the Roller Process. Agts for Allis-Gray roller mill.



FOR THE NEW CROP

PUT IN A

MINNEAPOLIS CENTRIFUGAL BOLTING REEL.

You Will Consider it the Best Purchase You Ever Made.

EVERY MACHINE A SUCCESS!

Clear up your flour from specks and fluff. For instance, take the best flour from the head of your ordinary reels to packer; then, when the specks and fluff begin to show, draw your slides and send the material to a Centrifugal Reel to be handled. *Note the difference in color and sharpness of your flour.* Or, put the tailings of your ordinary reels to a pair of smooth rolls, thence to a Centrifugal Bolting Reel. The flour of Centrifugal to packer, middlings through a piece of coarse cloth at tail of Centrifugal to purifier, and tailings proper to shorts. Note the difference in your clean up and the better quality of your flour over the old way of handling, and then commend your sagacity in taking our advice. While you are buying buy the best, **that's ours.** Every one using it says so. **EVERY MACHINE DOING EXCELLENT WORK.**

• MORE TAFFY! •

OFFICE OF J. W. GIFT & CO., Globe Roller Mills, Peoria, Ill., June 25, 1883.

Messrs. Willford & Northway, Minneapolis:

GENTLEMEN: Enclosed find draft in payment for No. 2 Minneapolis Centrifugal Bolting Reel shipped us May 29th. It gives us real pleasure to hand you this draft as your machine is making for us about eight dollars ($8.00) per day, having raised our Low Grade fully fifty cents a barrel over the old way of dressing it. Yours truly, J. W. GIFT & CO.

OFFICE OF THE NORTHWESTERN ROLLER MILLS, E. R. Hoyt & Son, Proprietors,
Baraboo, Wis., July 14, 1883.

Messrs. Willford & Northway, Minneapolis:

GENTLEMEN: In handing you our check for balance due you on contract for machinery, millwrighting, and the changing of our roller mill to your system of separations, we are happy to say that you have filled your part of contract to our entire satisfaction, and we are now confident, that our flour will find a ready market; that we can fully satisfy our customers and not have them return, or complain of any more poor flour from our mill.

Respectfully, E. R. HOYT & SON.

"A WORD TO THE WISE IS SUFFICIENT"

NONE OF OUR MACHINES WILL BE ALLOWED TO REMAIN IN USE UNLESS THEY ARE SATISFACTORY TO THE PURCHASER. In other words *their faithful performance and fine results are vouched for in every respect.* Too much time, labor and money (besides the wear and tear on our *brains, vast brains,*) have been expended on their development to allow any one of them to occupy position where it will not do its own advertising perfectly.

JUST WAIT! "OLD SOCKS" has a new scheme to get ahead of the Widow Miller. He may let us in on it next week

P. S. The widow? She's rich now and up-town buying a handsome pair of silk suspenders.

We Offer to the Millers of the Country our famous "GOLD RIBBON" brand of

Millers or millwrights changing mills over to the roller system, write us about our silk, for prices, etc. It will pay.

BODMER BOLTING CLOTH

Millers who know the value of exact count in Bolting Cloth will do well to correspond with us.

MANUFACTURED AND IMPORTED EXPRESSLY FOR OUR TRADE.

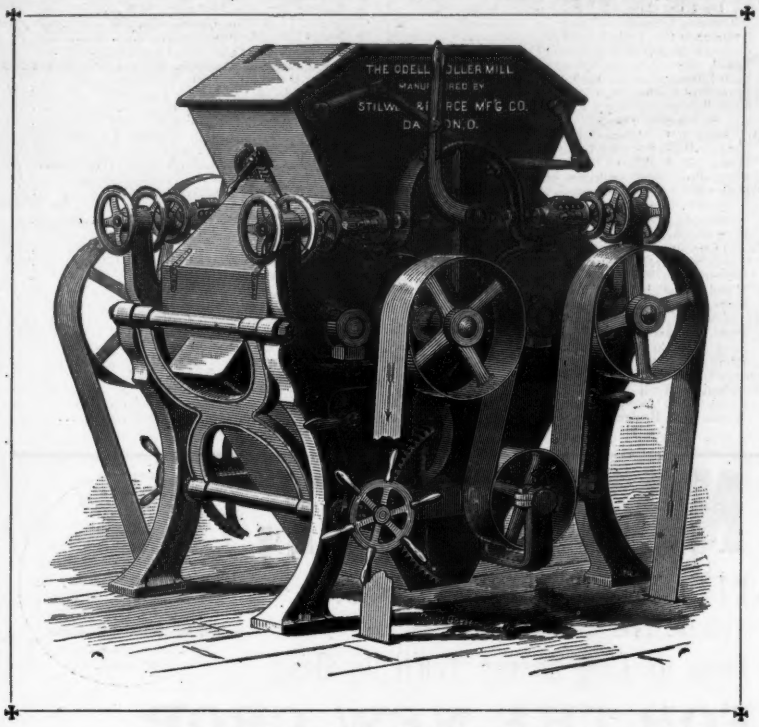
Our inspector rigidly requires the *best silk thread, great strength, full, square count, and evenness of mesh,* as we are well aware it is the only way to gain and keep the lead. The largest and best millers of the country are using our Gold Ribbon Bodmer Cloth and claim they can depend on its count when the best of other brands fail. Cloths made up with best twist and ticking, for 30 cents lineal foot of reel, and every cloth sent on its merits. Correspondence solicited, prices and discounts on application.

To be continued in our next.

WILLFORD & NORTHWAY, Minneapolis, Minn.

ODELL'S ROLLER MILL SYSTEM

Is now in successful operation in a large number of mills, both large and small, on hard and soft wheat, and is meeting with unparalleled success. All the mills now running on this system are doing very fine and close work, and we are in receipt of the most flattering letters from millers. References and letters of introduction to parties using the Odell Rolls and System, will be furnished on application to all who desire to investigate.



Odell's Roller Mill,

Invented and Patented by **U. H. ODELL,** the builder of several of the largest and best Gradual Reduction Flour Mills in the country.

AN ESTABLISHED SUCCESS!

We invite particular attention to the following **Points of Superiority** possessed by the Odell Roller Mill over all competitors, all of which are broadly covered by patents, **and cannot be used on any other machine:**

1. *It is driven entirely by belts, which are so arranged as to be equivalent to giving each of the four rolls a separate driving belt from the power shaft, thus obtaining a positive differential motion which cannot be had with short belts.*

2. *It is the only Roller Mill in the market which can be instantly stopped without throwing off the driving-belt, or that has adequate tightener devices for taking up the stretch of the driving-belts.*

3. *It is the only Roller Mill in which one movement or a hand-lever spreads the rolls apart and shuts off the feed at the same time. The reverse movement of this lever brings the rolls back again exactly into working position and at the same time turns on the feed.*

4. *It is the only Roller Mill in which the movable roll-bearings may be adjusted to and from the stationary roll-bearings WITHOUT DISTURBING THE TENSION-SPRING.*

5. *Our corrugation is a decided advance over all others. It produces a more even granulation, MORE MIDDLINGS OF UNIFORM SHAPE AND SIZE, AND CLEANS THE BRAN BETTER.*

We Use None But the Best Ansonia Rolls.

Our corrugation differs from all others, and produces **Less Break Flour, and Middlings of Better Quality.**

Mill owners adopting our Roller Mills will have the benefit of Mr. Odell's advice and long experience in arranging mills. Can furnish machines on short notice.
For further information, apply in person or by letter to the sole manufacturers,

STILWELL & BIERCE MFG. CO., DAYTON, OHIO.

WILCOX & SCAIFE,

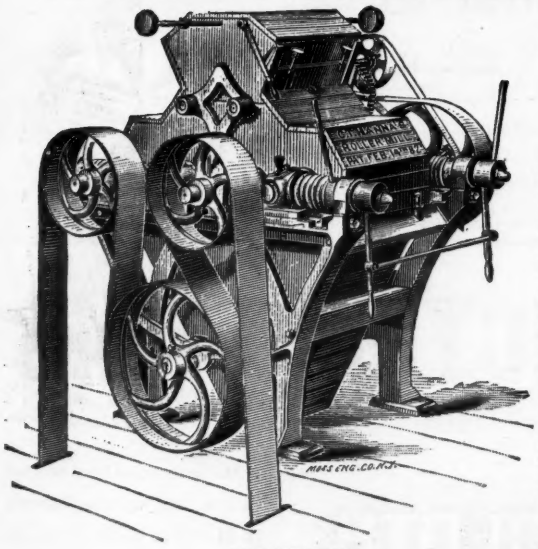
Successors to Wilcox, Shinkle & Co.,

General Mill Builders and Furnishers,

AND MANUFACTURERS OF

C. T. Hanna Roller Mills,

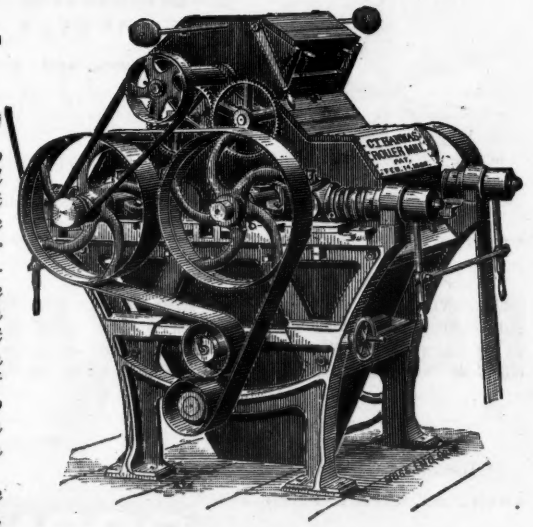
Pat. Feb. 14th, 1882. Other Patents allowed.



DRIVING END.

CORRUGATED TO SUIT EACH REDUCTION

of wheat to middlings and middlings to flour, leaving the bran broad and clean. All the horizontal adjustments are in direct line with line of contact. They are quite easily adjusted, and are positive in their action. The rolls are thrown apart by moving one lever, the reverse movement of same lever bringing them back to place of action again. They have a positive arrangement for keeping the rolls from contact with each other when running empty. Each end of roll has a separate vertical adjustment to keep them parallel with each other and in line with line of contact. They are driven by SUPERIOR belt movement, having large amount of belt surface for the amount of power to be transmitted, hence, no strain or slipping of belts. Have both positive and automatic feed.



DRIVEN END.

THEY ARE NOT SURPASSED BY ANY ROLLER MILL

Address **WILCOX & SCAIFE,**

39 Water Street, PITTSBURGH, PA.

THE

STANDARD CENTRIFUGAL REEL!

THE LATEST AND BEST.

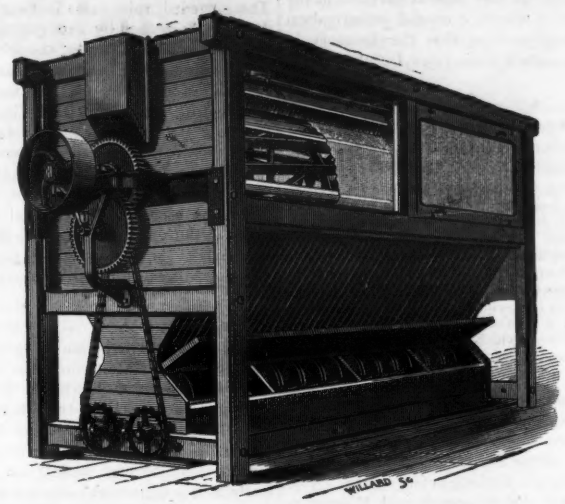
WE CLAIM

Greater capacity than any other reel of the same size.

The lightest running and easiest handled.

The best workmanship and the greatest durability.

More service from each square foot of cloth, and less wear of the cloth than any other reel whatever.



IT HAS

A 10 sided reel on which the cloth can be stretched tight and kept so, which can not be done on a round reel.

A brush attachment which sweeps each side of the reel perfectly every minute. No other polygonat reel has, or can have, this necessity. It may be used or not, as the material being treated may require.

This reel contains every feature which experience has shown to be necessary. It has the double conveyors side by side, and the material can be cut off every four inches if necessary. In case of a break in the silk this improvement allows the reel to be run until the miller has time to repair it. The brush can be regulated from the outside while the reel is in motion, to bear on the silk lightly, heavily, or not at all. The feed is automatic and air-tight, and there can be no center draft through the cylinder.

We are so confident of the correctness of our assertion that this is the best reel in the market that we will gladly ship it to any responsible party on thirty days' trial and let him be the judge as to its merits.

Office of the NORTHWESTERN MILL, Minneapolis, June 6, 1883.

Messrs. KIRK & FENDER, City.

Gentlemen:---In answering your inquiry as to how we like the Centrifugal bought of you, we have but to say that it gets "to the front" in better style than anything we have yet seen. It is giving us perfect and entire satisfaction. Yours respectfully, SIDLE, FLETCHER, HOLMES & CO.

FOR FURTHER PARTICULARS ADDRESS

KIRK & FENDER, Minneapolis.

THE OLDEST MILLFURNISHING ESTABLISHMENT IN THE WEST.

THE NORTH STAR IRON WORKS CO.

MINNEAPOLIS, MINNESOTA.

Machine Shop, Foundry, Boiler Shop

Manufacturers and Dealers in Shafting, Pulleys, Gearing, Etc.

BOLTING CLOTHS

which we import directly from the manufacturers in Switzerland, and which *we warrant equal to any brand in the market*, cloths made up ready for the Reels in the latest improved manner, using the best of Ticking and Silk Twist. Please write for prices discounts and samples of cloth before purchasing elsewhere.

MILL BUILDERS AND FURNISHERS Plans, Specifications and Estimates furnished upon application for complete new flour mills or for remodeling old mills into new process mills. Also manufacturers of **Bolting Chests, Centrifugal Reels and Dust Catchers.**

CHILLED IRON ROLLS, SMOOTH AND CORRUGATED, A SPECIALTY. Correspondence solicited. Price lists and discounts furnished on application. Write for catalogue and pattern lists.

NORTH STAR IRON WORKS CO.

THE

BAKER GRADUAL REDUCTION DISKS

FROM AN IOWA MILL.

ST. ANSGAR, Iowa, Nov. 20, 1882.

SERGEANT MILL BUHR DRIVER CO., Minneapolis.

Dear Sir.—We have got everything running nicely. Your breaks are a complete success. They have entirely exceeded my expectations; they do twice as much work as the rolls and granulate better. The suction fan removes every particle of fluffy and greasy flour from 1st and 2d breaks without removing any that is good. It also removes the fuzz scoured in the bosom of the break and conveys it to the bran house. It is an appliance that cannot be used as successfully on a buhr or roll. I congratulate you on the perfection of your break, and take pleasure in reccommending it to the milling public for primary reductions especially, and cheerfully invite them to my mill to see it in operation.

Yours very truly D. F. McCARTHY.

FROM A MINNESOTA MILL.

GRACEVILLE, MINN., Nov. 25, 1882.

Messrs. SERGEANT MILL BUHR DRIVER CO.

Our mill has been in operation two months on your system, making about 150 barrels per day, with three breaks, for which three of your Gradual Reduction Disks are used. We are free to say that we are perfectly satisfied with the result. Our patent flour doughs up with the best Minneapolis brands and sells at the same price, and is in most cases preferred, while we have made a contract by which we sell all our bakers' for a year at the top market quotations. We have no hesitation in saying also that we do more work with less power and that the outfit cost us less by 50 per cent. than if we had used corrugated rolls. If you wish to show any one how the breaks work send them here, or tell them to write to us. The Baker disks are the best investment we ever made.

Very truly yours STRONG BROTHERS.

For circulars and other particulars address *THE SERGEANT MILL BUHR DRIVER CO., MINNEAPOLIS, MINN.*

NORTHWESTERN MILLER

PUBLISHED EVERY FRIDAY MORNING,
BY C. M. PALMER.
At 25 South 2d Street, MINNEAPOLIS, MINN.
W. C. EDGAR, - - Business Manager.

$2.00 per year in U. S. and Canadas, postage paid
$3.00 per year to foreign countries, postage paid.

Agent for Great Britain, Mr. W. B. Newson, Mark Lane, London, and No. 2, Clayton Square, Liverpool, who will receive all subscriptions to the Northwestern Miller and communications for publication in its columns.

MINNEAPOLIS, FRIDAY, JULY 20, 1883.

THE report on Indian wheat, the conclusion of which we print this week, is a model document, and it is clear, easily understood and convincing. Yet, as we have said before, we doubt some of its conclusions, and must therefore regard the entire report as untrustworthy. Briefly, our reasons for doubt are as follows: The sample of American winter wheat ground by rollers was said to be good and sound, yet 280 pounds of flour from it made but 346 pounds of bread. The American spring made 354 pounds. The editor of the *Millers' Journal* made careful tests of many samples of both varieties last winter and obtained from 196 pounds of winter wheat flour 275 pounds of bread. This was the lowest result obtained, some giving 12½ pounds to the barrel more bread. In the same proportion 280 pounds of flour should yield 392¾ pounds of bread, instead of 346 as reported. Spring wheat gave in the same series of tests from 302¾ pounds down to 299 pounds of bread to the barrel containing 196 pounds of flour. Taking the lowest figure, 299 pounds, 280 pounds of flour should have yielded over 427 pounds of bread instead of 354 as reported by McDougall Bros. It may be argued that the experiments of the *Millers' Journal* were made with patents, while the English experiments were with straights, but it should be noticed that we have chosen for comparison the lowest, or No. 3, grade of patent, very little better or stronger than a first class straight.

* * *

BUT we do not rely on American experiments to discredit the report, and will take British practice instead. A reliable baker writes us from the other side: "On the milling part of the report I can say little, but on the fourteen baking tests, experience tells me they are erroneous and 'cooked.' For instance I will mention American spring wheat, roller milled. McDougall Bros. say they used flour, 280 pounds, yeast, 1 pound, potato ferment, 30 pounds, salt, 3½ pounds, water, 130 pounds, yield of bread, 354 pounds; divided by 4 giving 88½ four pound loaves to the sack of 280 pounds. Now I have no difficulty whatever in getting over 100 four pound loaves from the 280 pound sack of American spring straight grade—what I ordinarily use." In order to have sufficient confirmation of our assertion that this report is false and misleading we have requested another British baker, whom we know to be honest and reliable, to procure a 280 pound sack each of American spring and winter straight (and also Indian if it is on the market in an unmixed state) and bake them carefully, using every precaution to prevent mistakes. We shall soon receive a certified report of this test and shall present it to our readers. In the meantime they can take as much or as little stock in the McDougall report as they choose. Part of it, at least, is palpably false; our faith in the remainder is consequently very small. It is evidently designed to "boom" Indian wheat to the exclusion of all other varieties, but we doubt if the average British miller and baker will permit such "facts" to overturn in their minds the results of years of experience with all the varieties of wheat reported upon.

* * *

A RECENT report of the commissioner of the central provinces of India says: "A run of a few good seasons is as much dreaded by the agriculturist as a failure of the crops, for his produce is then a drug in the market, and he must sell at any price for money to pay the rent of the land." The long established practice of storing the grain in pits in the ground is a great detriment to the Indian export trade as the grain is often injured thereby, while frequently too plentiful harvests are permitted to rot in the fields. The various Indian railways have demonstrated to the satisfaction of the government that they cannot afford to transport wheat any cheaper than at present. Col. Holland, manager of the Great Indian Peninsula railroad says in a recent report; "the rates charged would not, if the traffic were confined to grain and seeds, with the coaching traffic, produce a net return of the five per cent guaranteed interest on the capital invested in the railway, and it was on a careful investigation of the cost of working that the directors, in May, 1881, raised their rates for these products."

* * *

AS showing what can be accomplished by unrestricted American competition, we quote the following from the *British Mercantile Gazette:*

Sir H. Barron, British secretary of legation in Brussels, observes that since the law abolishing duties on corn and meat, which came into operation at the beginning of 1873, the importations of provisions into Belgium, chiefly from the United States, have assumed enormous proportions. As regards foreign cereals, the consumption has trebled. It is added that the American competition is causing as much disturbance as in England, and is certainly lowering the value of land, the letting value of which has already fallen in some places 25 per cent.

* * *

THE transportation question, always one of the most important to millers, received less than its share of attention at the late annual convention of the National Association, and as usual there was nothing definite done. The transactions of the Wisconsin and Minnesota state associations relative to the subject were read, and Mr. Ames took up the matter and said very truly that the subject of transportation was an incubus that was hanging over the millers of the country at the present time; that they are the men who gather up the money, and the wheat and keep the railroads running, only to have the latter take them by the throat, while the man who has got a large stock of wheat can go to the companies, make a contract, and often get a rebate. He thought it important, now that the patent sharks were silenced, that special attention be directed to the transportation question, and recommended the appointment of a committee on transportation to look after the interests of the millers in that way. Mr. Seybt thought that transportation did not consist alone in getting the wheat from the local points of the west to the mill, but that it meant the shipping of flour as well. He went fully into the present evils attending transportation, after which the appointment of a committee was recommended and there the matter rests for the present. It will be taken up at the next meeting, talked over again in the same strain; a report of the committee, providing one has been appointed in the mean time, read; a new one appointed, and the same grievance repeated, while in the meantime the millers are suffering by extra freight rates, and general inattention as to promptness in transportation often keeping flour as long as sixty days in transit from Minneapolis to the sea board, as stated by President Brown at the Minnesota state millers' convention held in Minneapolis last April, and that he was never able to collect a cent for damages. There can be little hope for a change in the condition of affairs until the National Association make the subject one of national importance by showing that the railways are only public highways, and that, if necessary, legislation will be resorted to in order to secure justice, which simply means uniform rates.

* * *

OUR esteemed contemporary the *Millstone* has been trying the cold water treatment, and we judge with poor results, from the following proof slip sent us by Judge Ranck:

"We gave the news last month of a 'cyclone' that had swept through the office of a milling journal and knocked the stools from under several of the old *attackes* of the concern. We have to record this time a genuine blow through our own domain. This was no tempestuous business upheaval, like the other one, but a simon-pure, well-developed natural catastrophe, which took the roof off the *Millstone* office, flooded our press room, made pulp of about 50 reams of paper already printed for the July edition, knocked into 'pi' numerous galleys of 'live' matter, wet down our stationery, damaged the oil paintings, soaked the Brussels carpet, and deluged the library in our handsome editorial parlors,—in a word, 'raise the devil generally' all about the concern. All this occurred from the cyclone that swept through a portion of our city on the evening of the 12th inst. Our loss will amount to about $700, not counting in the labor of cleaning up or the vexatious delay in getting out the July issue. The *Millstone* is always 'at home' for any sort of blow-up, and it was to be expected when a 'tempestuous torrent' struck its neighborhood this fact would be recognized. We are somewhat disfigured but still in the ring."

* * *

THE very latest advices from the crops, as we go to press, show that there has been a decided change for the better throughout the spring wheat district during the past week. That needed rain came in time to avert the damage threatened by drought, and the crops in Minnesota and Dakota, the principal spring wheat regions, are in as favorable a condition as could be expected, by the most sanguine anticipators, while Iowa and Wisconsin report favorably for the spring wheat crop, although it has yet to pass a critical period. This is the time for doctored crop reports and they are at hand in all shades to suit every taste. Millers as a class are too well posted to be taken in, but the fact remains that about an even half of the grain trade in general (which includes millers), is deceived every year.

* * *

APPARENTLY there is yet wanting some cheap and convenient plan for gradual reduction on a small scale to meet the requirements of small custom mills, and if such a thing were put on the market there is every reason to believe that it would pay handsomely. There can be good work done in small mills, but it cannot be done so well nor so economically as it is done with complete modern roller plants. Several inventors have endeavored to supply this want, but general success has not rewarded their efforts so far, partly because the machine was too complicated, or too expensive, the latter being the greatest objection. The number of machines offered which partially meet this demand shows, however, that it is understood by inventors, and that if not yet on the market the proper device soon will be, for when the need for a certain machine is known to the class of men who produce machinery, relief is near at hand. The quality of the reduction work done thus far has been much superior, comparatively, to the purification and bolting possible with the very small quantities of material that have to be handled.

* * *

IN our issue of June 22, we said, in commenting on the *Roller Mill's* sockdolager roller patent, "that in order to anticipate a patent all its claims must be anticipated." Though explanations are generally tedious, we would state that what we meant to say was broadly, "where a patented machine consists of three elements, A, B, and C, though one of them, A, has previously been used with B in one machine, in the same form as it is used in the patented combination, and C has also been previously used with B in another machine, the new triple combination is nevertheless patentable if there is novelty and utility in the joint result," which we find on page seven of the July issue of the *Roller Mill*, yet the editor of that paper devotes more than half of page ten to a statement to the effect that we were entirely wrong in our assertion. He supports it with so many proofs that, were it not for his own explicit utterance, we should, perhaps, be inclined to weaken.

* * *

THE *Roller Mill* says that the editor of the NORTHWESTERN MILLER is a "venerable patriarch," and alludes to this standard sheet as its "toothless contemporary." To these epithets we must take exception. While it may be true that the editorial director has passed, by several winters, the three score and ten years set down in the scriptures as the span of human life, and that his dental equipment betrays the awkward handiwork of man, yet we assert, and we have no hesitation in leaving the question for decision to the judgment of our subscribers, that we, so far as we know it, have told them the truth; that we have been as early in the field with our intelligence as any other purveyor to their wants; that we have made as few mistakes as any newspaper, and have acknowledged and corrected those we have made as soon as possible thereafter. The gilded youth who conducts the *Roller Mill* could have done no more and may have done less; we leave the question with his conscience. Age is not disgraceful, though we must admit that it is sometimes disagreeable. Not the least of its disagreeable features are the taunts of such thoughtless younglings as the editor of the *Roller Mill*. Time brings its revenge, and that gentleman will some day regret having held the editor of the NORTHWESTERN MILLER up to reproach for the only one of his faults for which he is not in the least to blame.

* * *

THE trite proverb of Bishop Berkeley, "Westward the course of empire takes its way" is being verified every day, and has already become a truism. The magnificent mills of this city bear testimony to the saying, and if we examine into the matter more closely, the reasons become apparent. In the first place the wheat region has been steadily receding from the Atlantic towards the setting sun. There are no wheat fields in the New England states now. The Genesee and Hudson valleys were the great west a century ago, or even later, until eclipsed by the wheat and flour from the Brandywine. Then the Ohio became the western limit for a time. The great plains of Ohio and Indiana are now in the centre of wheat culture. Minnesota, Dakota, Kansas, and Nebraska are adding their wealth. As the grain region recedes, the cost of transportation will, of course, increase, so that in time we will have to look for some other and cheaper method of shipping. The profits of cultivation are lessened by freight rates in finding a market, and this compels the farmer to seek for "fresh fields and pastures new," where this expense of cultivation will be lessened. The prospective tendency, as well as the present condition of affairs is certainly well calculated to encourage the bright hopes that are indulged in as to the future wheat culture in the northwest. The soil is deep and almost inexhaustible, and with a little care and attention can be kept in its present condition for years. Both the soil and topography are admirably adapted to wheat, and the great water routes in the region give splendid commercial advantages. Besides this, the wheat is hard and dry, and is specially adapted to make flour that will keep in either damp or tropical climates.

* * *

WHEN the English Duke of Beaufort visited this country in 1879, he wrote to the *Western Mail*, predicting that the surplus of wheat produced in America and Canada, beyond the quantity wanted for home consumption, would continue to increase every year for over a century. He also says that "as American farmers get money for their wheat they will invest it in manures, and instead of having twelve bushels per acre as grown on old and unmanured land, its productive powers will be raised." Our wheat zone is enormous, and as the flood of emigration has again set in westward, more acres will be cleared and cultivated. Climate, land, labor, transportation is on our side, and these have placed it beyond the power of English agriculturists to compete with us, and they must also turn their attention to cheaper and better modes of raising beef and mutton or we will drive them out of their own markets with those commodities as well. This is encouraging and should stimulate our farmers and millers to adopt all new and really valuable improvements to be able to meet the demands which will be made upon them, with a superior article.

* * *

CONSUL George C. Tanner, of Liege and Verviers, one of the best representatives that the United States has abroad, has made an interesting report to the department of state on "American Trade Journals and Newspapers Abroad," which we reprint in great part elsewhere. As a disinterested opinion from a reliable source, it has great value, and every American who is interested in the progress of American trade abroad will find it well worth perusal and consideration.

* * *

WE publish elsewhere the conditions governing the competition for the prize we offer for the solution of problem III. Contestants should remember that we are not asking for handsome drawings, but that it is the merit of the plan itself which will be considered in making the award.

LOCAL & PERSONAL.

On the whole, the situation with the milling business may be said to be slightly improved this week, an advancing wheat market imparting more confidence to flour. However, the situation falls very short of being satisfactory to millers, but they hold out hopes that a point has now been reached where there will be a turn in their favor, and by which they will be relieved of fighting against so large odds. A larger number of our mills have been runing this week than last, but all have not run steadily, several of the fifteen in operation only getting in from one to three days' work, while others are not running to more than one-half to two thirds capacity. The flour production this week will average about 9,500 barrels per day, against 10,000 barrels last week, and is likely to be increased a week hence. The export business continues light, but there is more firmness and more inquiry at old prices. There is a better demand from the east, the market being firmer, and this gives rise to the opinion that the bottom has at last been touched.

Our receipts of wheat have been materially lighter the past week, and the shipments notably large. A point has evidently been reached where large inroads on the stocks in the city will be but a question of short time. The wheat stored in Minneapolis elevators, including the transfer elevator, on July 17 was 1,200,000 bus. There were about 525,000 bus. in the mills, making the total amount of wheat in store in the city 1,725,000 bus., against 1,737,000 bus. last week. The wheat stored at St. Paul is about 130,000 bus., against 218,000 bus. a week ago. The wheat in store in Duluth elevators on Saturday was 336,678 bus.

The following were the receipts and shipments at and from this point for the week ending July 18, and corresponding time last year:

		Received.	Shipped.
Wheat, bus.—	1883	195,000	25,140
" "	1882	754,500	44,000
Flour, bbls.—	1883	1,410	49,126
" "	1882	1,875	38,088
	LAST WEEK.		
Wheat, bus.		224,000	17,950
Flour, bbls.		750	47,834

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Our Milwaukee correspondent reports a lighter flour production in that city last week, five mills being in operation part of the time and the out-put averaging about 2,000 barrels per day.

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Mr. C. A. Pillsbury reached home Tuesday.

R. E Kidder, formerly in the Washburn A mill, is now at La Moure, Dak.

The Galaxy mill got its new wheel in, and was to start up Wednesday or Thursday.

Geo. Gildersleeve, of Sioux Falls, Dak., was expected in the city about Thursday.

Mr. J. A. Christian is now in New England. He is expected home about Aug. 1st.

Street deliveries of wheat for a week back have averaged between 400 and 500 bus. per day.

A. L. Miner, of the Pray Mfg. Co., has been confined to his home a week or ten days by sickness.

It is understood that Washburn, Crosby & Co. have leased the three Washburn mills for another year.

Wm. Buckham goes to St. Oloff, Dak., this week with a crew of men to commence work on the Pettigrew mill.

Millwright Edge took a crew of men to Minnesota City, last week, to begin the improvements on the Ellsworth mill.

Dave Brown, an oiler in the Washburn A mill, had a finger on the right hand taken off Tuesday by getting it between a pair of gears.

The Humboldt mill was shut down Tuesday from the failure of some wheat to get around, and it may remain idle the balance of the week.

The Pettit, Columbia, Cataract and Dakota mills, which have been shut down from one to two weeks each, resumed operations on Monday.

Messrs. E. Zeidler and Wm. de la Barre were out to Brier lake, on the Hastings & Dakota road, last week, and report fine piscatorial sport and a general good time.

The Washburn C mill was shut down Thursday week, and although it was desired to start it up again Thursday, it is improbable that it will be ready to run before Monday.

Herm Bidwell, head miller of the Galaxy, nurses a painfully jammed finger, it serving him as a reminder of the nice little time encountered in getting in the mill's new wheel.

Mr. C. R. Vincent, representing the Erie, Pa., engine firm of Skinner & Wood, and who has been west for some time, making Minneapolis his headquarters, started home Tuesday.

Millwrights Jos. Cottier, Wm. Mitchell, Major Wellman, Mr. McClusky, W. Quail, Geo. Gibbs, and Chas. Sumler left Tuesday for Topeka, Kas., to take part in building the Crosby mill.

Our St. Louis correspondent this week furnishes an account of a serious accident which occured to Wm. Enger, a Minneapolis millwright, while at work on the Planet mill at Litchfield, Ill.

Mr. J. A. Grovernor, of the National Wire & Iron Works, Detroit, Mich., is in the city making arrangements to introduce the goods of his firm to the millers and manufacturers of the northwest.

The Link Belt Machinery Co. notifies us that their agency at Minneapolis having been discontinued, all orders should be sent to Chicago direct where a large and complete stock is kept, and all orders will be promptly filled.

Willford & Northway report the following orders received for their centrifugal reel: 3 to Indiana, 2 being to Richards & Butler of Indianapolis; 1 to W. H. Mattingly & Co., of Missouri; and 1 to Amos Phelps, of Wisconsin.

Willford & Northway are getting a large number of orders for finished iron work, such as pulleys, shafting, gears, etc., and give this line of work special attention. This firm also reports a heavy business in Bodmer bolting cloth, one of their specialties.

One of the things that the Pillsbury A mill greatly needs is a private fire alarm box. If a portable candy shop within half a dozen blocks of the mill gets on fire, box 125 is pulled, and the whole neighborhood is excited, in expectation of seeing the A mill annihilated by fire.

The accompanying table exhibits our receipts of wheat by grade for the week ending July 17:

	Cars.		Cars.
No. 1 hard	99	No. 3 regular	53
No. 2 hard	42	Rejected	9
No. 1 regular	76	Condemned	31
No. 2 regular	122		
Total			432

W. S. Nott, who has managed the business of E. B. Preston & Co. since the establishment of their house here, has been admitted to partnership, and the firm is now Preston & Nott. Mr. Nott is one of the most successful young business men of Minneapolis, and deserves his promotion.

A gentleman who is well acquainted with and has recently seen Charley Manouk, says that he believes it true that Charley has been left a fortune of $50,000 by the death of his father at Smyrna, Asiatic Turkey. His mother has requested him to come on at once and get his money.

Thos. Hutchins, who some time ago left here and took charge of the Gift mill at Peoria, Ill., was back to the city this week on a visit. He is highly pleased with his position, and returned Wednesday. The Gift mill will be shut down shortly to undergo some improvements, among other things a new engine being added.

One of the peculiarities of the flour business is to see considerable amounts shipped from St. Louis and used in Minneapolis, the recognized milling centre of the world. The flour so received is used by our bakers in pastry and cracker manufacture, winter wheat flour being better adapted for the purpose than spring wheat flour.

W. D. Gray arrived in the city Tuesday, accompanied by W. G. Rainy, a patent lawyer of Chicago. Mr. Gray contemplates bringing action against different parties for infringement of parts of his well known belt roll patents, and is here to take depositions of mill men, the most of whom will be head millers. It is thought that about a week will be consumed in the work.

The firm of Wheeler, Hineline & Co. has been dissolved by mutual consent, and the business of the St. Anthony mill, which was shut down Thursday week, is being closed up by C. W. Moore, of Crocker, Fisk & Co. When the mill was shut down, all hands were permanently laid off, including Head Miller Robinson, who, we hear, will give up the milling business.

Geo. Alley, who had one of his arms severely injured in the mill of Syme & De Mott, at Long Lake, Minn., while employed in the same a year or more ago, has commenced action against H. V. De Mott, the surviving partner of the firm, for $5,000 damages. Alley was caught by a pair of unprotected gears on Stevens rolls, and his hand and arm up to the elbow were badly crushed, crippling him for life.

The machine shops of Strothman Bros., in south Minneapolis, were entered one night last week by burglars, who in a futile effort to blow open the safe, came near burning up the institution. When the engineer arrived at five o'clock in the morning, he found the floor on fire, but was enabled to put it out before any particular damage was done. The burglars went off without getting anything for their trouble, but left the firm's safe in such a shape that it could not be opened.

The annexed table, compiled by the *News* from the books of Secretary Sturtevant of the chamber of commerce, shows the receipts and shipments of different articles at and from Minneapolis for the first six months of this year and 1882:

Bushels.	1882.	1883.	Increase	Decrease.
Wheat received,	6,942,000	7,560,156	618,156	.....
Wheat shipped,	1,125,000	525,290	.....	599,710
Corn received,	433,450	322,853	.....	110,597
Corn shipped,	243,550	74,950	.....	168,600
Oats received,	436,800	393,114	.....	43,686
Oats shipped,	310,000	42,150	.....	267,850
Barrels.				
Flour received,	70,625	116,908	46,283	.....
Flour shipped,	1,065.340	1,704,310	638,907	.....
Tons.				
Millstuffs received	9,068	5,244	.....	3,824
Millstuffs shipped,	44,470	49,049	4,579	.....
Pig iron received,	4,057	3,210	.....	847

Some of the head millers of the city are inquiring if it is not about time that steps were being taken to perfect the proposed head millers' organization. This matter was frequently referred to at the late meetings held to close up the annual excursion business, and the proposition at the time seemed to meet with general favor, while the interest since then has evidently not flagged any. The idea of those contemplating such an organization is to provide means whereby the head millers can be brought together for benefits to be derived from social intercourse, and possibly to do limited benevolent work. The consummation of the erection of the millers' monument will also naturally form another field of labor for the organization; but all features characterisic of trades unions will be strenuously excluded. The present organization of head millers grew out of their holding annual excursions, and is most incomplete, there being simply a president, secretary and treasurer yearly elected, without constitution or by-laws. Both of the latter would have to be framed and adopted before the organization would be placed on a tangible footing. In view of the fact that there is apparently so general a desire to have a head millers' association formed, we would suggest that President Walsh call an early meeting to consider the proposition.

Cooper's Chips.

The Kennedy shop, east side, will run only four days this week.

A judgment for $329 has been secured against Cook & Lambdin, oak coopers at Philadelphia.

Seventeen cars of barrel stock were received in the city for the week ending with Tuesday.

Fred Alton & Son, coopers of Lansing, Mich., have dissolved partnership, Fred Alton continuing the business.

A large cooper shop is operated in connection with the state prison at Stillwater, and some of the milling firms of Minneapolis use barrels manufactured there to some extent. The Stillwater mills also patronize these shops. All parts of the barrels are there made by hand.

J. C. Geissendorf's flour mill at Rome City, Ind., was burned on the night of the 11th. Loss, $15,000; insurance, $3,500.

The third trial of John H. Watkins, at Toledo, O., for burning his mill to get the insurance, $20,000, was concluded on the 13th inst., the jury, which was out forty-six hours, failing to agree, and being discharged. This case has attained considerable celebrity being long drawn out, the insurance companies leaving no stone unturned to secure conviction. While under arrest, Watkins made a confession, but afterward denied it. On the first trial, the jury failed to agree; in the second, Watkins was found guilty, but he managed to secure a new trial through some technicality. Each trial lasted about a month, and the three must have cost the county $5000. This will probably end criminal proceedings, against Watson, but the insurance companies will now institute a suit for the insurance money.

From Springfield comes the report that corn has improved in all parts of Illinois the past month and promises a better crop than at the same time last year. The present condition of corn gives encouragement for about 181,000,000 bushels, an amount a little larger than that produced last season.

MARKETS

MINNEAPOLIS, July 18.

The grain markets have ruled more steady the past week, and prices range higher. Confidence in values seems to have been at least partially restored, but speculation is considerably subdued and operators still manifest more or less vigilance. The spring wheat crop is the object of considerable solicitude and the leading grain dealers in the northwest are flooded with inquiries regarding the growing grain. Portions of the Red River valley have been favored the last few days with good rains, but they have, perhaps, been too late to materially repair the injury already inflicted by the drought in that section. A conservative estimate would place the average yield in the country north of the Northern Pacific at from 2 to 4 bushels less than that of 1882, providing favorable conditions continue until harvest. The remaining few weeks will be critical ones throughout the whole spring wheat section, but with reasonably cool and dry weather, and taking into consideration the increased acreage, nearly an average crop will be assured.

The local market has been fairly active with an upward tendency in prices. The receipts have been light, the majority of the elevators tributary to this market having closed the season's business early in the month. Quite a number of the milling fraternity from the lake markets and outside milling points have been on 'change during the week and made liberal purchases. The amount of hard wheat on the market is light, and to effect purchases of round lots, quite a premium would have to be paid. The lower grades have found ready sale at relatively good prices. There has been a fair supply of coarse grains but the demand has not been very active. There has been a moderate inquiry for oats, but sales of corn have been comparatively light.

The following were the highest and lowest prices on 'change during the week ending today together with to-day's closing prices:

WHEAT.	Highest.	Lowest.	Closing.
No. 1 hard	$1.10½	$1.09½	$1.10½
" 2 "	1.06	1.04½	1.06
" 1 Northern	1.05	1.04	1.05
" 2 "	.99	.98	.99

No. 1 hard seller the year offered at $1.06 with $1.05 bid.

BRAN—Ranged from $6 50@6.75, closing at the latter figure.

SHORTS—Closed at $9.25@9.75, according to quality.

In the flour market export business continues light, but there is more firmness and more inquiry at old prices. The demand from the east is better, the market firming up, but buyers yet show a disposition to buy from hand to mouth. Local quotations are: Patents, $6.40@6.65; straights, $5.25@5.50; bakers', $5@5.25; low grades, $2@3.10.

Following were the receipts and shipments at and from Minneapolis for the week ending July 17:

Receipts.		Shipments.	
Wheat, bus.	160,500	Flour, bbls.	50,358
Corn, bus.	6,600	Millstuff, tons	1,317
Oats, bus.	14,600	Wheat, bus.	21,890
Barley, bus.	6,710	Corn, bus	1,200
Flour, bbls.	2,650	Barley, bus.	15,400
Millstuff, tons	107	Barrels stock, cars	1
Barrel stock, cars	17		

ROUGH NOTES.—XXXIII.

FROM A WORKING MILLER'S POCKET BOOK.

A recent innovation in the arrangement of conveyors is one in which they are placed side by side, rather than one over the other. The idea cannot be said to be new, however, having been used in this country for nearly twenty years. During the last few months it has been subjected to a revival, until now there are two centrifugal reels made with conveyors this way, and a firm in Ohio is building bolting reels of a common form so arranged. There may be some drawbacks which I don't see, but this arrangement certainly has some good points, and points of superiority over the old methods. With present arrangements, when one pulls a slide, he cannot always be sure, until he looks, that the opening is clear; it may still be closed because of the stock not dropping out when the slide was drawn. With the conveyors arranged side by side this is positive; there cannot be any closing up of the opening. A nice thing about these conveyors is that one can examine the flour or other stock coming from this slide. This can be done with the conveyors as ordinarily arranged, but is very inconvenient; so much so that it is far from being a universal practice, as it should be. It is a better way to tell just how much flour to take off by looking at the separate streams of stock as they come from the upper conveyor, than it is by examining the whole mass at the flour spout, but I do not believe that such a practice will become universal until the conveniences for so doing are greater than they are with our old reels. The common way of judging of the work of a reel lumps the whole process. With the conveyors arranged side by side, the work can be judged in detail, in small sections at a time, and thus fine distinctions can be made, small differences recognized and profited by. Old reels, with the conveyors one under the other, can be arranged to do this, but it is not so convenient.

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We frequently meet the statement that different steam engines will make a barrel of flour in some instances with twenty pounds of coal, in others with twenty-five, and in some instances thirty-five and more. It is not desired to speak of a comparison in efficiency or anything of that kind, but to criticise that method of expression which rates the efficiency of an engine according to the number of pounds of coal consumed in making a barrel of flour. In the first place one mill may take a great deal more power to make a barrel of flour than another. This may be on account of the machinery and the manner in which it is put up, or it may be because of the varying amounts of machinery used in doing the same amount of work. There are mills which are making 500 barrels of flour per day, with the equivalent of 40 pairs of 9x18 rolls. There are others which are using 60 pairs to do the same thing. The latter will presumably use more reels, purifiers, and cleaning machinery than the former, and altogether use considerably more power in accomplishing the same result. There is still another consideration aside from the machinery in the mill, which proves this method of rating an engine to be erroneous, and that is the construction of the steaming apparatus—furnace and boilers. Deficiencies in such arrangements would increase the amount of coal required to make a barrel of flour, consequently a poorly constructed furnace or boiler would require the consumption of more coal to make a barrel of flour than a more intelligent arrangement. An engine can be tested or rated properly without reference to the output of the mill or the efficiency of the steaming apparatus. When we say an engine yields so many horse power per hour with the evaporation of a certain quantity of water, we are making a comparison which absolves it from all such varying considerations as those mentioned. To give an example, it will be supposed that an engine yields one horse power per hour for each 20 pounds of water evaporated. This does not bring the furnace into the question at all, and consequently the amount of coal burned has nothing to do with it as a matter of comparison of one engine with another. It is the amount of steam used to yield a horse power, or rather the amount of water evaporated to make that steam. Another engine may yield a horse power an hour from the evaporation of 22 pounds of water, and yet make more flour, owing to the simplicity of the milling methods or the excellence of construction in that mill. It is clearly to be seen that the engine should not be credited with this simplicity or excellence. It is a matter which need not be considered in rating the engine. On the other hand, an engine may be made to appear to be doing better work than another, owing to points of superiority in the steaming apparatus.

When an engine builder guarantees to furnish an engine which will make a barrel of flour, with a given quantity of coal, he is doing a very wild thing, for in how many instances does he know what horsepower is required to make a barrel of flour in that mill, or the evaporative qualities of the boiler. Where he is furnishing the engine and the steaming apparatus, he can only guarantee the amount of steam or water evaporation that it will require to yield a horse power per hour. This far, and no farther. Say that he knew the power required one time to make a certain quantity of flour, the quality of wheat exerts a marked influence on the power required to do a certain amount of work. If this engine builder is building the furnace and constructing the boiler, as well as supplying the engine, he can, if he is well enough acquainted with the steaming apparatus guarantee the amount of water he will evaporate per pound of coal, but he had better keep his guarantee outside of the mill, which is a very uncertain quantity. The evaporative qualities of the boiler and the amount of evaporation required by the engine, absolve the performance from the quality of the mill and the urnace, as they do the furnace from the quality of the engine and the mill.

I know of an engine which is developing 200 horse power, and making 500 barrels of flour in twenty-four hours. I know of another engine which is developing over 300 horse power and doing no more work. In the former instance the mill runs easy, and the steaming apparatus is fairly good. In the latter, the steaming apparatus is poor, the mill is poorly arranged, and the machinery runs hard. These mills are quite removed one from another, but if the engine builder has taken the former mill as a standard and guaranteed results as is often done, there would have been ground for a fight.

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I was looking at the offal from a buhr mill the other day, and comparing it with that of a roller mill. The roller mill offal certainly looked considerably the cleanest. It represented a yield of nearly four bushels and thirty pounds, while the buhr mill, according to unquestionable authority, was making a barrel of flour out of four bushels and fifteen pounds of wheat. As I said before, there was a marked difference in the appearance of the offal in favor of the roller mill. If one were asked to pick out which of the mills was the 4:30 and which was the 4:15, he would undoubtedly have reversed the facts. Can it be possible, I reason, that one mill can make a cleaner feed than another and still not make as good a yield? It looks like an axiom, a self evident truth, that the cleanest feed means the best yield. After talking to a number of old millers about it, I am led into the following explanation, that the buhr mill pulverized more bran and other offal, and in that way got it into the form of flour. From this view of the case it appears that the buhr mill made a larger yield of pulverized feed and flour, while the roller mill made the largest legitimate yield of flour with the minimum quantity of impurities. The feed that escaped the pulverizing influence of the millstone had the appearance of being the richest. The roller mill feed really was the cleanest, but there was less of it in the flour and more of it in the feed pile.

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This number of the "Rough Notes" diverges from the line of the three previous papers which had in mind a view of the mill, commencing with the first reduction and the contingent separations, and so on through the mill. It is merely an intermission, and the original purpose will be followed out, commencing probably with the next number.

The Nebraska board of agriculture rates the condition of the wheat crop of that state at 96 per cent.

MILLING NEWS.

Geo. Kuhn, miller, of Mishawaka, Ind., has failed.

A. B. Gregory, grain broker, of Indianapolis, Ind., recently died.

D. P. Hoops, of Oskaloosa, Ia., is the inventor of a grinding mill.

Jas. F. Allfree, of Cumberland, Md., has received a patent on a roller mill.

The lumber for the new elevator to be built at Detroit, Minn., has arrived.

G. Fehrenbach a miller of Millersburgh, O., is reported burned out; partly insured.

J. S. Bangs, a miller, of Waterville, Me., has been burned out, but was insured.

N. B. Buxton, running a saw and grist mill at North Anson, Me., recently assigned.

S. W. Westbrook & Co., millers, Mt. Vernon, Ill., were recently burned out; partly insured.

The elevator of Cooper & Augustine at Cooper, Ill., was recently burned, at a loss of $6,000.

Beattie & Hoppie, millers, of Atlanta, Ga., have dissolved, Mr. Hoppie continuing the business.

One dealer of Hastings, Minn., furnishes over 300,000 feet of lumber for the Espenchied elevator.

Walker, Hopkins & Co., grain commission merchants of Detroit, Mich., are financially embarrassed.

Asmuth & Kaus, grain dealers of Milwaukee, Wis., have dissolved, being succeeded by F. Kaus & Co.

The ten year old daughter of J. S. Jeffers was recently smothered in her father's elevator at Shelbyville, Ind.

Mair & Dwight, commission, grain, and provision merchants, of Chicago, have dissolved, C. A. Mair & Co. continuing.

Farmer Dalrymple has 28,000 acres of wheat and 2,000 acres of oats and barley growing in the Red River valley this season.

During a storm Friday night the roof of a mill at Sumner, Ill., was blown off and the machinery and stock heavily damaged by the deluge of water which followed.

A wind storm on the night of the 12th, did $50,000 damage to property in Indianapolis, Ind., the foundry of the Nordyke & Marmon Co. suffering to the extent of $800.

A change has been made in the firm of Howes, Babcock & Ewell at Silver Creek, N. Y., Mr. Babcock retiring, and the business being continued by Howes & Ewell.

Another crib dam ten feet in length, at Ottawa, Ont., has been carried away, taking with it about thirty feet of superstructure. The break is now about fifty feet wide.

The Star flouring mill, foundry and machine shop, and two grain elevators at Clyde, O., owned by Hunter & Wilcox, were recently burned Loss, $50,000; insurance, $27,500.

The Hardscrabble flouring mill owned by J. N. Cummings, of Spring Valley, Minn., has been burned. The property was worth $5,000, and important repairs were in progress.

The affairs of M. S. Nichols & Co., the grain and provision firm affected by the McGeoch failure, are found to be not in near as good shape as was represented shortly after the suspension.

An Effingham, Kas., correspondent says: "Benton and McMath, our grain dealers, are getting their elevators and warehouses in condition to handle the largest crop ever raised in this vicinity."

The agricultural department of Kansas estimates the wheat crop of that state, which is about harvested at 26,701,000 bushels, which is a loss in yield of 7,241,000 bushels as compared with 1882.

A hail storm which passed southeasterly across Iowa and Illinois on the 12th, caused great damage to crops and property. In Scott county, Iowa, a tract of forty square miles was devastated, and in Black Hawk county 1,000 acres of grain were ruined.

In a fire which on Friday destroyed the larger portion of the business part of Cakato, Minn., the elevator of Dull, Edmunds, Coulson & Co. was burned. The elevator, in 1881, cost $5,600. Three men lost their lives in the fire.

Patents were issued last week as follows, on devices pertaining to grain handling: Wheat cleaner, to D. P. Mortley, Rexburg, Va.; automatic grain meter to E. M. Thorpe, Wapella, Ill.; grain elevator to Wm. Watson, Memphis, Tenn.; elevator bucket to H. W. Caldwell, Chicago, Ill.

The first shipment of flour from the Black Hills was made on June 21 by the Deadwood mills, 84,000 lbs. being transported to Pierre by bull "train," from thence going by river to Cheyenne agency. Ten times this amount has since been contracted for for the same purpose.

The Grange mill at Waterford, Minn., was struck by lightning during a thunder storm on Saturday. The bolt entered the roof over the purifiers and set them on fire, and the mill would undoubtedly have been completely destroyed but for the prompt action of the miller in charge and watchman. The damage is between $8,000 and $10,000, covered by insurance.

A Muscotah, Kas., correspondent says: "Dan. McCuaig, the miller, lost heavily by the recent high waters. While his property has always been a source of annoyance to him, he has been found equal to any emergency, and the mill is again in running order. M. J. Walsh, our grain buyer and lumber dealer, will increase his elevator to a forty car capacity, it being now only twelve cars. He will also put in a switch to facilitate the handling of grain. He predicts a large increase over last year's business."

BUSINESS NOTICES.

A LONG FELT WANT SUPPLIED.

The La Crosse Smooth Chilled Iron Roller Mill—price $125.00. These mills will crush tailings or size middlings for a 100 barrel mill. For particulars apply to JOHN JAMES & CO., La Crosse, Wis.

BOLTING CLOTH.

Don't order your cloth until you have conferred with us. It will pay you both in point of quality and price. We are prepared with specia facilities for this work. Write us before you order. Address

CASE MFG. CO., Columbus, Ohio.

Office and factory 5th St., North of Naughten.

STEVENS ROLLS RE-CORRUGATED.

Millers in the west and northwest, who may have Stevens rolls that require re-dressing or re-corrugating, can have such work promptly and expeditiously performed by MR. ROBT. JAMISON, NEENAH, WIS., to whom we have furnished an outfit of specially constructed machinery for this purpose.

THE JNO. T. NOYE MFG. CO.,
BUFFALO, N. Y.

CLUB LIST.

NORTHWESTERN MILLER with

American Miller	1 year	$2.50
London Miller	"	3.00
Scientific American	"	4.50
American Agriculturist	"	3.00
Harper's Magazine	"	5.00
Century (Scribner's) Magazine	"	5.30
Boston Journal of Commerce	"	4.25
Abernathy's Hints on Millbuilding	"	4.00
Emerson's Book	"	2.50

Other publications, not on above list, can be furnished in connection with the NORTHWESTERN MILLER, at a corresponding reduction on the price charged for them separately.

ALWAYS AHEAD.

The Atlas engine works have brought out a new automatic cut-off engine of remarkable simplicity and at a very low price. There is nothing equal to it in the market for any money. The sizes run from 20 to 100 horse power, and all who intend putting in new engines for mills this season should be sure to see this before buying. We hope to have a sample soon and are ready to receive orders now.

SHATTO & DENNIS,
207 Washington Ave. North,
Minneapolis.

Minutes of the Dust Club.—XIII.

BY THE SECRETARY.

Bro. Stoneman on taking the chair said:

"Bro. Dusties: The millstone got a good show at our last meeting. If any brother has a peculiar theory of his own to bring forward, I know he will be listened to with pleasure. I have no doubt but Bro. Buhrstone can interest the meeting this evening, as he seems to be in good order. He has always been very much interested in the subject of stones and rolls. He is by education and experience fully able to handle this subject."

Bro. Buhrstone: "In common with the older members of this club, I have looked on the struggle between the rolls and the millstones the past few years with a great deal of regret. I say regret, at the risk of being considered a man void of all that which constitutes the man of progress. Madame Roland on being taken to the scaffold exclaimed: "Oh Liberty! how many evils have been committed in thy name!" and I feel to-night Bro. Dusties, like saying in the same tones: "Oh Progress! how many absurdities have been introduced into the flour mills of the day in thy name!" I say I have viewed with regret the struggle that has been going on because I consider that our faithful friend, the millstone which always responded to the touch of the skillful workman has been turned over to the cranks and botches, bound hand and foot as it were, and if not consigned to oblivion it has not been the fault of that class of gentry. I ask you, Mr. Chairman and Bro. Dusties, who it was that hailed with delight the advent of the diamond stone dressing machines and the emery wheel?

[Cries all over the room "the expert and botches."] "Yes Bro. Dusties, I am glad to see you agree with me on this subject. It is this same class of people who not being able to manipulate the stone for the lack of brains or the proper training, have tried in every manner to get it out of their way or to get something that would put them on an equal footing with the skillful workman. The trouble has been Mr. Chairman, with all these mechanics, that they could not think. It takes more than cheek and a glib tongue to keep a stone in proper condition, hence all the botches, who were out of a job one half of the time, because they could not handle the pick, hailed with delight the introduction of the roll because they saw in that machine the long desired assistance that they so sorely needed to be able to make a living in the business. I do not wish Mr. Chairman, it to be understood that I am personally very much opposed to the roll taking the place of the millstone, because I do not care a particle whether I make flour with the roll or stone. I can handle both, but I protest against green-horns, both old and young, sneering at a machine, when their speech and their writing show them to be ignorant of what it can be capable of doing in the hands of a first-class miller.

"It is the fashion, Bro. Dusties, to attribute to the roll the credit of all the improvements that have been made in the flour mills of to-day, forgetting that the roll has the assistance of improved bolt chests, bolting systems, and purifier systems, that the millstone never had in this country, except for a very short time.

"It was impossible to get the mill owners of a few years ago, to put out a dollar in improvements or allow the miller to change a spout, notwithstanding we were clamoring to be allowed to make some changes in the then existing order of things.

"I grant that the roller mills are making more money and the best flour, but this is owing to the improved methods outside of the grinding department, in a great measure.

"It is hardly necessary to go into the scientific part of the question bearing on the different action of rolls and stones, studied from a chemical point of view. That is not my object at this time, and besides, Bro. Coborne gave us something on that point the other night, and will do so again. I simply want to call your attention to a few points bearing on the reasons, in my estimation, why the roller mill takes the trade away from the stone mill where they are brought into close competition. It is not true that it is always the case, for in some parts of the country to-day, stone made flour takes the lead.

"In taking into consideration the construction of the stone mill of a few years ago and a roller mill of to-day, one need not look very closely to see why the roller mill makes the best flour.

"Let us look at the two classes of mills and point out the most essential features of the two, in, say a mill of 150 barrels capacity.

"The cleaning machinery will be about the same; there have been very little or no improvements in this respect.

"The grinding machinery usually consisted of three runs of stone and about two reels, or in extreme cases three, per run, as bolting capacity, with a bran duster.

"The roller mill must have, to be as complete, five double sets of fluted rolls as break machines, three runs of stone, one for patent, one for the middle grade, and one for low grade, because it would not be the correct thing to grind the middle grade on the patent stone or the low grade on the middle grade stone; it would certainly result in making a mixture that at some time would injure the character of the mill. Four to six sets of smooth rolls would be necessary in order to carry out the system properly.

"The bolting capacity would consist of five break reels as scalpers, four reels on the middle grade making the proper separations, the same number on the patent making the proper separations, and two on low grade. It would be also necessary to have reels for the sizings or what is called germ middlings. If two sizings are made, not less than two reels to each sizing could be used because there ought to be a flour reel and also a reel for scalping and taking out the coarse middlings. Then would be necessary, six or eight purifiers of, say ten or twelve feet long with their dust-houses and a bran duster. I am aware that there are mills which use less machinery than what I have set forth, but the work is so mixed up that no one who is posted would feel justified in putting up a mill without making the proper classifications, and it would take about this amount to do so. But it is in the mills of the larger class that the contrast is the greatest.

"You Mr. Chairman, will bear me out in saying that we have worked in mills in times gone by, that would register eighty to ninety barrels per day, per run, and whose bolting capacity was only three reels per run.

"Let me give you, brother dusties, a list of the machinery of a 1,200 barrel mill of the old school and one of the new roller mills of the most pronounced type.

"The former consisted of 12 runs of 4½ feet stone, 6 bolt chests of 8 reels, 6 bran dusters.

"The latter, 10 runs of stone, 120 reels, 70 double sets of 9x18 rolls, fluted and smooth. I also invite your attention to the crew list of the two mills.

"The former mill had one head miller, one night head miller, 4 stone dressers, 2 oilers and 2 smut men.

"The latter one head miller and 2 assistants, 8 grinders, 2 bolters, 6 purifier tenders, 4 smut men, 4 oilers, 4 dust house men.

"Now, in view of these facts, and I defy any one to disprove the facts or figures I have stated to-night, is it reasonable to expect that an old-fashioned mill could make as good work as a modern roller mill.

"If the mere fact of making money is going to be the criterion, the advocate of the millstone would have no argument at this time, but there are other matters and points connected with the business that must be taken into consideration, such as the cost of the plant and the benefits accruing to the increased expenditure, for I take it for granted that you will all admit that the cost of the roller mill is at least one-third more than the stone mill; and consider whether or not the modern mill is adapted to work through a long series of years without change on hard and soft wheats and also wet and dry.

"These are some of the considerations that ought to influence us in making up their minds in regard to the subject under discussion to-night.

"It is hardly fair to look at any subject from a purely selfish standpoint. A man that is making money with a roller mill of course thinks it just the thing; also the man who has a stone mill, who is losing money and trade, will think the same way, but it appears to me that this is not a very broad view of the subject. We ought to go out of our immediate surroundings to look at a subject of this kind.

"There is no doubt that the roller mills are and have been, making more money than those with stone, but is it not because they are enabled to make better separations, and because the bolting apparatus is constructed in a more liberal and reasonable manner than because of the use of the rolls? I venture the assertion that a first class roller mill to-day will cost double what a stone mill did of like capacity. The interest on this extra money is something. It is of course not felt while they have a monopoly of the business, but when they are all on an equality again, that is, when all the mills are roller mills, which they will be before many years if the roll spreads as fast as it has done, how much better off will the mill owners be than when they were running all stone. It appears to me that they will not be as well off as they were before, neither will the consumer. That flour could be made by the use of rolls has been long known, no one will deny; admitting this, is it not possible that there might have been some other reason besides ignorance and bigotry, that induced the millers of thirty years ago to prefer the stone to the roll. Two or three years is a very short time in the history of milling—during which time we have been operating the roll—and is hardly sufficient time to base an opinion on the question of the relative merits of stone vs. rolls. He must be a very young man or a very green man to assume that the problem has been solved, when millers who ought to know the most about the question are in doubt.

"Suppose we should have a few successive wet seasons like that which we had in the northwest last year, what could we do with the roller mills? Those of us that worked in roller mills at that time know that it was almost impossible to clean the bran of that wheat, and also that it required the miller to be poking the feed roll almost all the time to keep the feed running, especially on the 5th and 6th breaks.

"The action of the smooth rolls on the clean middlings was equally unsatisfactory. Instead of breaking up and falling to pieces, almost one-half of it would tail over the reel in a flattened state, making it necessary to introduce in the mills dismembrators, detachers, centrifugal reels, and the Lord knows what to add to the troubles of the poor "dusty." Now let me ask you Mr. Chairman, what benefit all this is to the community at large and the milling fraternity? The operative miller has been injured, I contend without fear of contradiction, because, as soon as the mills shut down, all the millers are laid off, when on the stone system there was always plenty to do for all the millers on the stone. I grant that one or two of the grades of flour have been given a little more color, but is it any better for food? do we not hear on every hand complaints of the bread now-a-days being tasteless and drying up so quick that it keeps the house-keeper making bread almost every day? Let me ask still another question! Do we make any better yields than we used to do? I think not as good. A first-class mill on spring wheat made a barrel of flour out of 4 bus. and 15 lbs. and in good years cleared $1.00 per barrel. It is true that sometimes twenty-five cents per barrel would be all that was in the business. But I will dismiss this part of our subject by saying that the millers throughout the country will never make as much money with their roller mills as they did on the old stone system.

"Before closing these remarks, I wish to say that my attention was called to an article in the NORTHWESTERN MILLER on this same subject, stone vs. rolls, in which the writer, 'John Henry Right' among other absurd statements, says that the stone was always a failure; that it could not be made to grind two days alike, and that it could not be kept in face or tram, etc.

If 'John Henry' never saw a stone grind two days alike, or could not prevent it from getting out of face, and tram, he certainly must know a great deal about a stone.

"As for his making lots of money with stone mills we will 'let him tell it;' we will also take it in that he bought purifiers, heaters, scalpers, etc., etc.; but I would suggest to 'John Henry Right' that the reason of his being so unsuccessful with them was because he probably knew as much about their use as he does about keeping a stone in face, etc., etc. I only notice this matter, brother dusties, because it is a fair specimen of the absurd abuse the millstone receives at the hands of a certain class of people.

"Let me repeat my objections to roller milling, that if any members of the club should take exceptions to what I have said and desire to reply at some future time they will be able to do so.

"I object to roller milling: first, because it is a more expensive mode of reducing the wheat into flour, both in regard to machinery and the men employed to operate it. Second although one or two of the grades of flour made are a little whiter, it is done at the expense of the balance. Third, that a roller mill is not able to handle all kinds of wheat and do the work properly; that in order to do first class work it is necessary to fit it for a special kind of wheat, and consequently a mill is restricted to a special class of trade.

"In closing, permit me to thank the club for ts kind attention." [Cheers.]

Bro. Mace: "I move that a vote of thanks be tendered to Bro. Buhrstone for his masterly effort this evening."

It was seconded by Bro. Goss, and on being put to vote was unanimously carried.

Bro. Mace: "Move we adjourn."

Bro. Jack Stoneman before putting the motion remarked that he did not coincide with Bro. Buhrstone in all his remarks and assumptions, and at some future time would endeavor to refute them.

The meeting then adjourned.

SHORTS.

In places where the supplies are not expected to be large this does not make so much difference but in country places where supplies must be taken when offered they should be put in a separate warehouse as near the mill as possible.

*

Economy of power and manual labor should always be born in mind as the hope of increasing profits is the spur to all improvements.

*

In some of our mills nearly one half of the shafting and machinery might have been avoided if the mill had been originally better planned. The duties of the miller will also be made easier, as by properly arranged machinery they will not be so scattered, so that while he is in attendance upon one duty, others equally important will not be neglected.

*

Cleaning, granulation, and bolting should, as far as possible, all be under the command of the eye and ear of the miller at the same time.

*

Thorough economy in manufacture cannot be had without the best talent and by not wasting capital and power in unnecessary machinery. Every part of the mill should be arranged so that all the work can be carried on with the least manual labor.

*

All the processes should be brought together as near as possible, so that whilst one is being attended to, the others will not be neglected; but above all see that the grade of the flour is kept up.

*

When everything is in perfect running order, and the machinery suitably and economically arranged, the next object should be to increase the amount and quality of flour, and in order to do this, the cleaning of the wheat, and the bolting of the flour must be strictly attended to.

*

The hands attending the purifiers should be most assiduous in seeing that they are kept running properly and that the work done by them is as perfect as possible.

*

Many difficulties present themselves in cleaning wheat coming directly from the farmer as it will be found mixed with many foreign substances, which can only be removed by processes adapted to each substance.

*

The scouring of wheat is easily accomplished when all the separations are thoroughly performed.

MILLING AT MILWAUKEE.

[SPECIAL CORRESPONDENCE.]

Since this day week varying changes have characterized our market, especially so in wheat. The early part of the week prices were low, and the bottomless pit seemed hard to reach, while the latter part of the week prices became steadier, and wheat advanced three cents per bushel and closed firm. This is caused by the destructive storms west of the Mississippi, and reported rains in Great Britain, which always excite the Englishman about growing crops. However, the excessive stocks abroad will not allow any decided advance, and unless more damage to crops is reported a reaction will probably occur next week.

The city trade demand is extremely limited, and few sales of note were transacted. Patents remain firm at $6.50@7.00 per barrel, and bakers' at $5.25@5.50 per barrel. City mill roller rye flour is quoted at $3.50 per barrel. The feed market is higher and firm at the advance. Sacked bran is salable at $13.00 and bulk at $11.00; sacked middlings at $15.00 and bulk at $13.00.

The daily production of our mills has been as follows for the past week:

Operated by	Mill.	Bbls.
J. B. A. Kern & Son	Eagle	*800
Schlessinger & Daggett	Northwestern	†350
E. Sanderson & Co.	Phœnix	800
Stern & Wohlrab	Jupiter	200
H. Nunemacher & Co.	Star	†400
Total daily production		2,550

*Only run three days. †Only run five days.

The closing of the above mills lessens the capacity 3,150 barrels per week.

The receipts and shipments of flour and wheat for the week as compared with former periods were as follows:

FLOUR—RECEIPTS.	Bbls.
For the past week ending July 14th	50,883
Corresponding week last year	32,731
Since Jan. 1, 1883	1,663,427
Corresponding time in 1882	1,591,226
SHIPMENTS.	
For the past week	52,453
Corresponding week last year	49,265
Since Jan. 1, 1883	1,957,524
Corresponding time in 1882	2,070,879
WHEAT—RECEIPTS.	Bus.
For past week	60,985
Corresponding week last year	164,656
Since Jan. 1, 1883	3,991,452
Corresponding time last year	3,734,272
SHIPMENTS.	
For past week	51,175
Corresponding week last year	73,035
Since Jan. 1, 1883	836,712
Corresponding time last year	874,656

***

The chamber of commerce will suspend afternoon sessions until fall.

A. Bennett, who broke his leg at the Eagle mill last Saturday, will recover.

E. P. Allis & Co. report the following sales for the week: Wamego Milling Co., Wamego, Kas., one complete 100 barrel roller mill, including a 14x42 Reynolds-Corliss engine; also a 14x42 Reynolds-Corliss engine for the Sunflower Oil Co., of Clarksdale, Miss.

The Daisy mills are adding two Prinz dust catchers for their cleaning machinery.

Milwaukee, July 14. BRIGHTON.

California Crops.

A despatch from San Francisco of the 12th inst., says: "Information received at the office of the Central Pacific concerning crops, forces the conclusion that wheat interests have suffered severely by reason of the hot weather in June. Up to that time it was estimated that the surplus wheat for exportation would be worth $36,000,000, but hot winds ruined the grain in many of the most productive portions of the state, drying the milk as the grain was being filled out. In many sections of the state wheat looks splendidly, but when examined it is found that it will hardly pay to cut it. In Colusa and Yolo counties it is reported that hardly 40 per cent of an average crop will be obtained, and information as to the southern counties is of the same discouraging character, with the exception of the Druist localities near the coast, which have had an abundance of fog. Instead of a large surplus for exportation, which was anticipated, it is now believed there will be not over $24,000,000 worth. It is estimated that $20,000,000 is nearer the truth than the former figures.

A daughter of August Westerson recently came very near being drowned in the flume of the Ennis mill at Hastings, Minn. She was rescued by a boy and girl companions.

MILLING PATENTS.

MIDDLINGS PURIFIER.—To Geo. R. Cannefax, Dixon, Mo.; No. 280,571; dated July 3, 1883. Fig. 1 of the drawings is a vertical sectional view of machine, and Figs. 2 and 3 are cross sectional views of the same. Claims: 1. The combination, with the bolt-case A, having the inwardly sloping lower walls, C, provided with the openings B, of the inclined series of pivoted slats D and their operating rods *g*, located at the tail end of the bolt-case, the flaring draft chamber H, the mouths of which register with the openings B, the pipe L, suction fan P, and pipe R. 2. In a purifying attachment for flour bolts, the combination, with the draft chamber and its series of adjustable slats, of the draft pipe, suction fan, check fan and receiver under said check fan, and the regulating valve.

Fig. 1

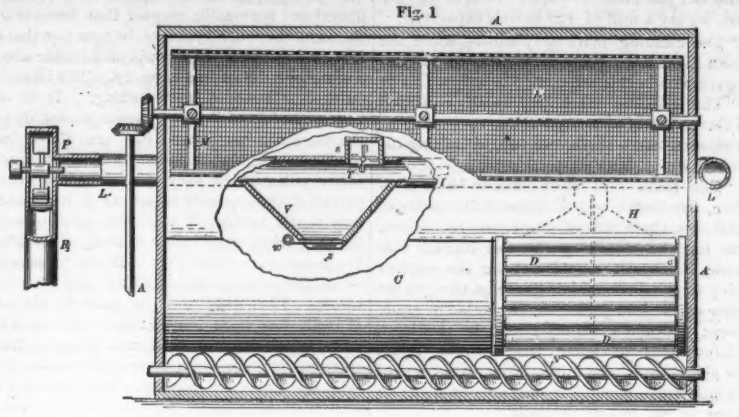


Fig 2

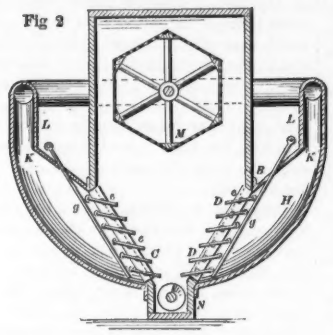
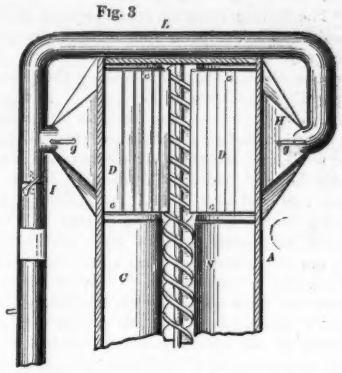


Fig. 3



PATENT, No. 280,571; MIDDLINGS PURIFER.

Fig. 1

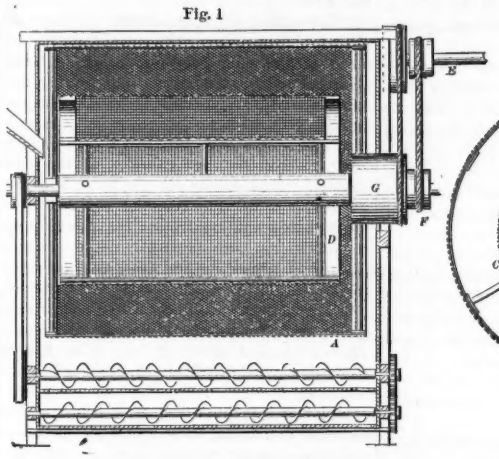
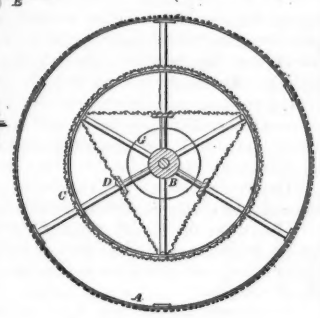


Fig. 2



PATENT, No. 280,692; BOLTING REEL.

Fig. 1

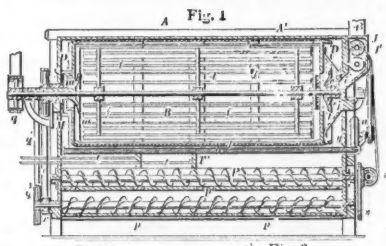


Fig. 4

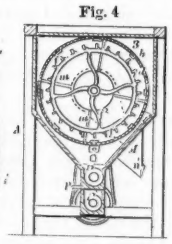


Fig. 6

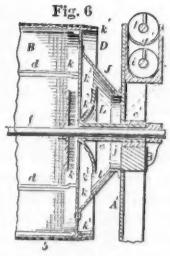


Fig. 2

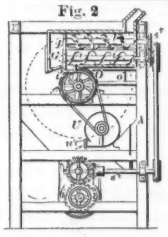


Fig. 3

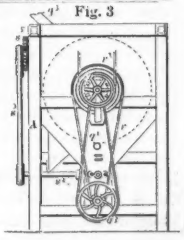


Fig. 5

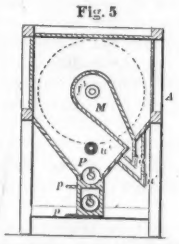
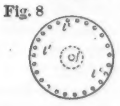


Fig. 7

Fig. 8



PATENT NO. 280,622; CENTRIFUGAL FLOUR BOLT.

BOLTING REEL.—To J. M. Van Slyke, of Ottawa, Kas., assignor of two-thirds to J. E. Winn, Jackson, Mich., and C. J. Gale, Corunna, Mich.; No. 280,692; dated July 3, 1883. Fig. 1 is a longitudinal section of improved reel, and Fig. 2 is a transverse section of same. Claims: The combination of the outer bolt, A, the cylindrical wire bolt C, arranged within the bolt A, and the coarse wire work distributer, scourer, and separator, arranged within the said bolt C, the said devices being adapted to be rotated in the same direction with each other.

CENTRIFUGAL FLOUR BOLT.—To A. P. Holcomb and August Heine, Silver Creek, N. Y.; No. 280,622; dated July 3, 1883. Fig. 1 is a longitudinal sectional elevation of machine; Fig. 2 an elevation of the front end with the feed mechanism in section; Fig. 3 an elevation of the rear end; Fig. 4 a cross section of the machine looking rearward. Fig. 5 is a cross section, Fig. 1; Fig. 6 is an enlarged longitudinal section of the feed end of the bolting cylinder; Fig. 7 is a cross section, Fig. 1, and Fig. 8 is a front elevation of the disintegrating head arranged within the bolting cylinder. Claims: 1. The combination, with a flour bolt composed of a revolving bolting cylinder and revolving beaters arranged within such cylinder, of a preliminary disintegrating and separating mechanism composed of a spiral brush and a perforated trough in which the brush rotates, and means whereby the fine material which is driven through the perforations of the casing is conducted into the flour bolt and the coarse material excluded from the flour bolt and discharged separately. 2. The combination, with a revolving bolting cylinder B, and revolving beaters *f*, of a head D, arranged at the feed end of the bolting cylinder, and provided with a central opening k^2, ribs k^3, and a deflector L, whereby the material is fed into the bolt at or near its axis, a hood J, and a collar *j*. 3. The combination, with a rotating bolting cylinder and rotating beaters, of a feed device consisting of a head D, provided with a central opening k^2, ribs k^3, a deflector L, and hood J, whereby the material is fed into the bolt near its axis, and a discharge device consisting of a head D′, having a central opening *m*′, ribs *m*, and a deflector m^3, whereby the coarse residue is discharged from the bolt.

The Boorman Mill at Mauston.

We take the attached description of the above mill from the Necedah, Wis., *Lumberman:*

"The visitor to the beautiful and thrifty village of Mauston has by no means seen the maximum of its excellence in fine structures, its business, and its enterprises, until a visit has been made to the new flouring mill recently erected by the enterprising owner, B. Boorman. The new mill does not only serve as a monument to the energy of its indomitable and persevering founder, but stands as an industry in Juneau county only surpassed by the manufacture of lumber. It is to be regretted that Necedah can not point to the existence of a similar institution, and we must, as a people, share in the feelings experienced by our Mauston neighbors, in having, at so convenient a point, a mill capable of producing the finest and best grades of flour manufactured. The Mauston mill has a capacity of 150 barrels, and uses 14 sets of rolls located in the first story, 6 sets being corrugated and the rest smooth. On the second floor are 6 Smith purifiers, an aspirator, 6 scalpers, 12 silk reels. In the third story are 3 Smith purifiers, a bran duster, and three balloon dust houses. The Mauston mill has always enjoyed a good reputation, but it is not the mill it was a couple of years ago. It has taken thousands of dollars to put it in its present shape, and it is not saying too much when we predict that the entire trade of this immediate vicinity will eventually turn to this source for supplies."

Following were the exports from this country and Canada from Sept. 1 to July 13:

To—	Flour, bbls.	Wheat, bus.	Corn, bus.
Great Britain and Ireland	5,423,956	51,729,964	32,044,856
Continent	361,033	26,473,123	6,762,493
S. America, W. I. and other countries	2,055,000	763,447	1,042,464
Totals	7,836,989	78,966,534	39,859,813
Corresponding time 1881–82	4,890,040	72,636,079	25,812,164

TWO PERFECT MILLING MACHINES

PEERLESS DUST COLLECTOR. | MORGAN SCOURER AND POLISHER.

READ THE TESTIMONIALS.

SEND FOR PRICES.

MINNEAPOLIS, Minn., Oct. 30, 1882.

Messrs. Kirk & Fender, Manufacturers of Morgan's Wheat Cleaners and Scourers, Minneapolis, Minn.

GENTLEMEN: * * * Would not be without them for anything. I can see that my bolting capacity has increased largely; the same with my purifiers. The only way I can account for this is that my wheat is well cleaned. I do not have any oats or fine fuzz to contend with, consequently my bolts and purifiers work free and open.

W. H. HELFRICH, Head Miller "Anchor" Mill.

MILWAUKEE, Dec. 5, 1882.

Messrs. Kirk & Fender, Minneapolis, Minn.

GENTS: * * * We have been running both the Morgan Scourer and Polisher for the past 14 years, and up to the present we consider them the best in the market. Respectfully yours,

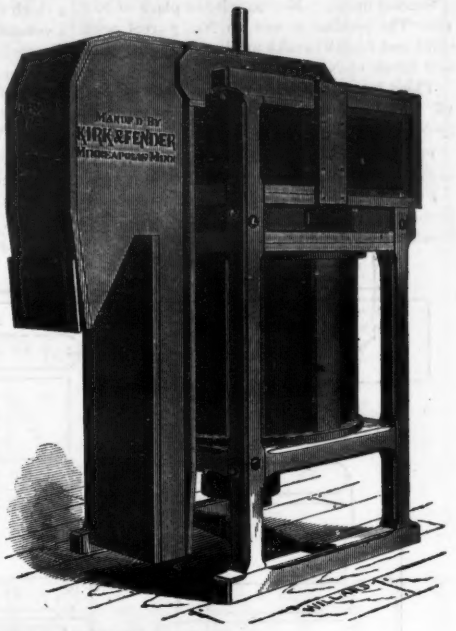
C. MANEGOLD & SON.

WILMINGTON, Del., March 1, 1883.

Messrs. Kirk & Fender, Minneapolis, Minn.

GENTLEMEN: We have had the Peerless Dust Catcher about six weeks; it is giving the best of satisfaction. We are working it on a purifier which takes its middlings from the head end of the coarse grader. The dust from this grade of middlings is the softest, stickiest material in the mill, being worn off the coarse middlings while traveling in a conveyor to the grader. It has given us no trouble whatever, more than to oil it once a day, and I say, without fear of contradiction from any one who will examine or give the machine a trial, that it is the best machine ever offered to the millers of America for the purpose of collecting the dust drawn out of a purifier.

Yours truly, O. H. TITUS,
Head Miller of the Wm. Lea & Son Co.'s Mills, Wilmington and Newcastle, Del.



KIRK & FENDER,

SOLE MANUFACTURERS, MINNEAPOLIS, MINN.

A NEW DEPARTURE!

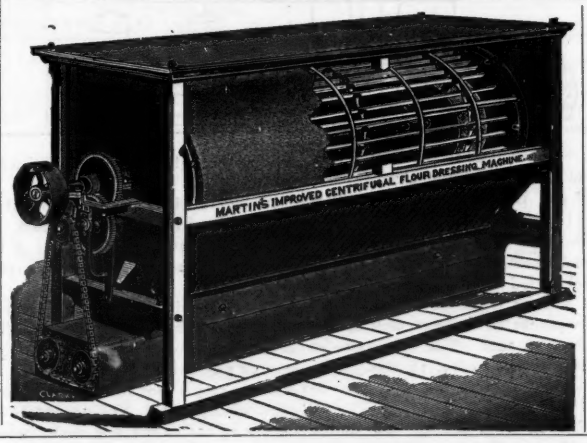
We are the Sole and Exclusive Licensees for this Country under the **Moritz Martin Patents** on

CENTRIFUGAL FLOUR DRESSING REELS

***THE CENTRIFUGAL** has more than FOUR TIMES the capacity of the ordinary reel, and will make clear flour and a clean finish on stock that cannot be treated in the common reel without loss, no matter how much silk it is passed over.*

***IT IS SPECIALLY ADAPTED** to handling soft, re-ground material, full of light impurities, whether from rolls or stone.*

***IT IS VASTLY SUPERIOR** to the common reel for dusting middlings.*



***IT IS INDISPENSABLE** to a CLOSE FINISH in any system of gradual reduction milling, and will improve the quality of the low grade flour at the same time it makes the offal cleaner.*

***IT MAKES A CLEAN SEPARATION** on caked and flaky meal from smooth rolls, which no other style of reel can do.*

***THEY CAN BE USED TO ADVANTAGE** as a complete system of bolting, to the exclusion of the ordinary reel.*

And we are now prepared to fill orders for machines with latest improvements, which include

OUR NEW

DOUBLE CONVEYORS,
CLOTH FIXING AND STRETCHING DEVICE,
AND SIMPLIFIED MANNER OF DRIVING.

OVER ONE HUNDRED SOLD IN SIX WEEKS!

REFERENCE TO LEADING MILLERS IN THE UNITED STATES.

Write for Descriptive Circulars and Price List to

GEO. T. SMITH MIDDLINGS PURIFIER CO., JACKSON, MICH.

Answer to Problem II.

BY WINTER WHEAT.

I have found it necessary to make a great many changes, but think no more than are needed to make the proper separations.

Below will be found description of changes made.

The corrugations will remain the same as in problem. The first break No. 20 wire in place of No. 16. The product is run the same as in problem, to No. 21 reel, where the flour and fine middlings are removed; the coarse middlings are run to purifier.

Second break. No. 22 wire in place of No. 16. The product is run to No. 7 reel with third and fourth breaks in place of going with first break to No. 21 reel.

Third break. No. 22 wire in place of No. 18. The product goes the same as in problem to No. 7 reel.

Fourth break. No. 24 gauze, the same as in problem. Product the same to No. 7 reel.

Fifth break. No. 28 gauze, the same as in problem. Product goes to No. 20 reel. This break is kept separate, as the middlings from it are not fit to go with the rest, that is, if the breaks are made so as to clean the bran with six breaks.

Sixth break. No. 34 gauze, the same as in problem. Product the same to No. 10 reel.

No. 7 reel is fed from second, third and fourth break chop, and is clothed with No. 8 silk, the same as in problem. Product goes the same to No. 8 reel; tail the same to No. 19 reel.

No. 8 reel is fed from No. 7 reel and is clothed with No. 13 silk. Product the same to bakers' flour; cut-off from tail to No. 9 reel. (The tail of this reel in problem goes to No. 19 reel.)

No. 9 reel is fed from cut-off and tail of No. 8, and is clothed with Nos. 14 and 15 silk. Product to bakers' flour; tail goes to porcelain roll. This is reduction dust and should be kept from the middlings. In problem it is run to No. 19 reel and mixed with the middlings again.

No. 10 reel is fed with chop from sixth break, and is clothed with Nos. 15, 10 and 1. The No. 15 goes to bakers' flour; the No. 10 to centrifugal; the No. 1 to tailings roll. (In problem the reel is clothed with No. 13. Cut-off and tailings go to red dog reels.) This is quite a loss, as there is some good sharp middlings in that which I get through the No. 1 cloth and crush on the tailings roll. The tail of No. 10 reel I run to bran duster.

No. 11 reel is fed from red dog stone, bran duster, dust catchers, dirt from first break, and is clothed with No. 13. Product to red dog flour; cut-off and tail goes to No. 12 reel. (I have taken the No. 0 cloth of this reel and continued the No. 13, as I have no coarse stuff in the reel; it is not required. In place of sending the tail of these reels to the bran duster, and the product coming back again, I send it to the shorts bin. The No. 2 cloth on No. 12 reel in problem keeps such a volume of stuff going back that it overloads the reels.)

No. 12 reel is fed from tail and cut-off of No. 11 reel, and is clothed with No's. 14 and 7. The 14 goes to red-dog flour, the No. 7 back to stone.

No. 13 reel is fed from clean middlings stone and is clothed with Nos. 13 and 9. Product 13 to patent flour. The No. 9, a portion or all of it, can be run back to the stone, by way of No. 18 reel or it can all be run to the porcelain roll. The tail goes to the scratch roll.

No. 14 reel is fed from the clean, coarse middlings roll and is clothed with Nos. 14, 4 and 1. The 14 goes to patent flour, the No. 4 goes to No. 18 reel, the No. 1 to No. 19 reel; tail goes to sizing roll.

No. 15 reel is fed from sizing roll, and is clothed with Nos. 14, 9 and one. The No. 14 can be run to patent or bakers' or it can be rebolted on No. 18 reel. The No. 9 can be run to porcelain roll or to No. 18 reel. The No. 1 goes to No. 19 reel, the tail goes to tailings roll.

No. 16 reel is fed from tailings rolls and is clothed with Nos. 14, 8 and 0. The No. 14 goes to bakers' flour. The No. 8 goes to the scratch roll, the No. 0 to red dog stone, the tail to bran duster.

No. 17 reel is fed from porcelain roll, and is clothed with Nos. 14, 15 and 6. The No. 14 and 15 goes to bakers' flour. What is not clean enough can be run to centrifugal. The No. 6 goes to the scratch roll, tail to red dog stone.

No. 18 reel is fed with the cut-off of 13, 14 and 15 reels and is also used to dust the fine middlings from those reels, before going to stone. The fine middlings taken from No. 14 will go through the 6 and 3, and will all drop right through the 00.

No. 20 reel is fed from fifth break chop and is clothed with Nos. 14, 8, and 2. The No. 14 goes to bakers' flour, the No. 8 to scratch roll, the No. 2 to No. 5 purifier, the tail to tailings roll.

No. 21 reel is fed from first break chop and is clothed with Nos. 9, 7, and 2. The No. 9 is run to red dog reels, the No. 7 goes to scratch roll, tail to No. 3 purifier. In problem this reel is used for first and second break chop, clothed with Nos. 10 and 0. The product is all run to red dog reels, which would be a great loss from the No. 0 cloth, and the tail of reel goes to sizing rolls without any cleaning. The No. 2 on this reel goes to No. 5 purifier.

PURIFIERS.

I use the same number as in problem.

No. 1 purifier is fed from 40 gauze and 19 reel, and is clothed with Nos. 8, 7, 5, 3, 1, 0. Product goes to No. 2 purifier, cut-off to No. 3 purifier, tail to tailings roll.

No. 2 purifier is fed from No. 1 purifier and is clothed with Nos. 8, 7, 6, 4, 2, 1, 0. Product goes to clean middlings stone, cut-off to No. 3 purifier, tail to tailings roll.

No. 3 purifier is fed from tail of 19 reel and is clothed with Nos. 48, 44, 40, 34, 28, 20 gauzes. Product can all be run to No. 4 purifier or part to clean middlings roll; tail to tailings roll.

No. 4 purifier is fed from No. 3 purifier, and is clothed with 54, 48, 42, 38, 32, 22 gauze. Product to clean middlings roll, cut-off to sizing roll, tail to tailings roll.

No. 5 purifier is fed from No. 2 cloth on Nos. 20 and 21 reels, and is clothed with Nos. 9, 8, 7, 5, 3, 2. Product to No. 3 smooth roll, cut-off back on machine, tail to tailings roll.

ROLLS.

I use one more than in problem, one porcelain, to grind reduction dust.

No. 1 is the scratch roll in problem, which I will use, but would prefer a porcelain roll. It is fed from the No. 8 on No. 20 reel, the No. 7 cloth on No. 21 reel, the tail of No. 13 reel, the No. 6 cloth on No. 17 reel, and the No. 8 on the 16 reel. The material after being ground is bolted on the centrifugal reel, which should be of good length and clothed with Nos. 14 and 15; the product to bakers' flour; cut-off can be run to No. 10 reel; tail goes to red dog stone.

No. 2 roll is smooth, and is fed with clean coarse middlings from 3 and 4 purifier. Chop from roll to No. 14 reel.

No. 3 roll is smooth, and fed from cut-off, No. 4 purifier, the tail of No. 14 reel, and the middlings of No. 5 purifier. Chop from roll to No. 15 reel.

No. 4 roll is fed from tails of purifiers, tail of 20 reel, and the No. 1 cloth on No. 10 reel. Chop from roll to No. 16 reel.

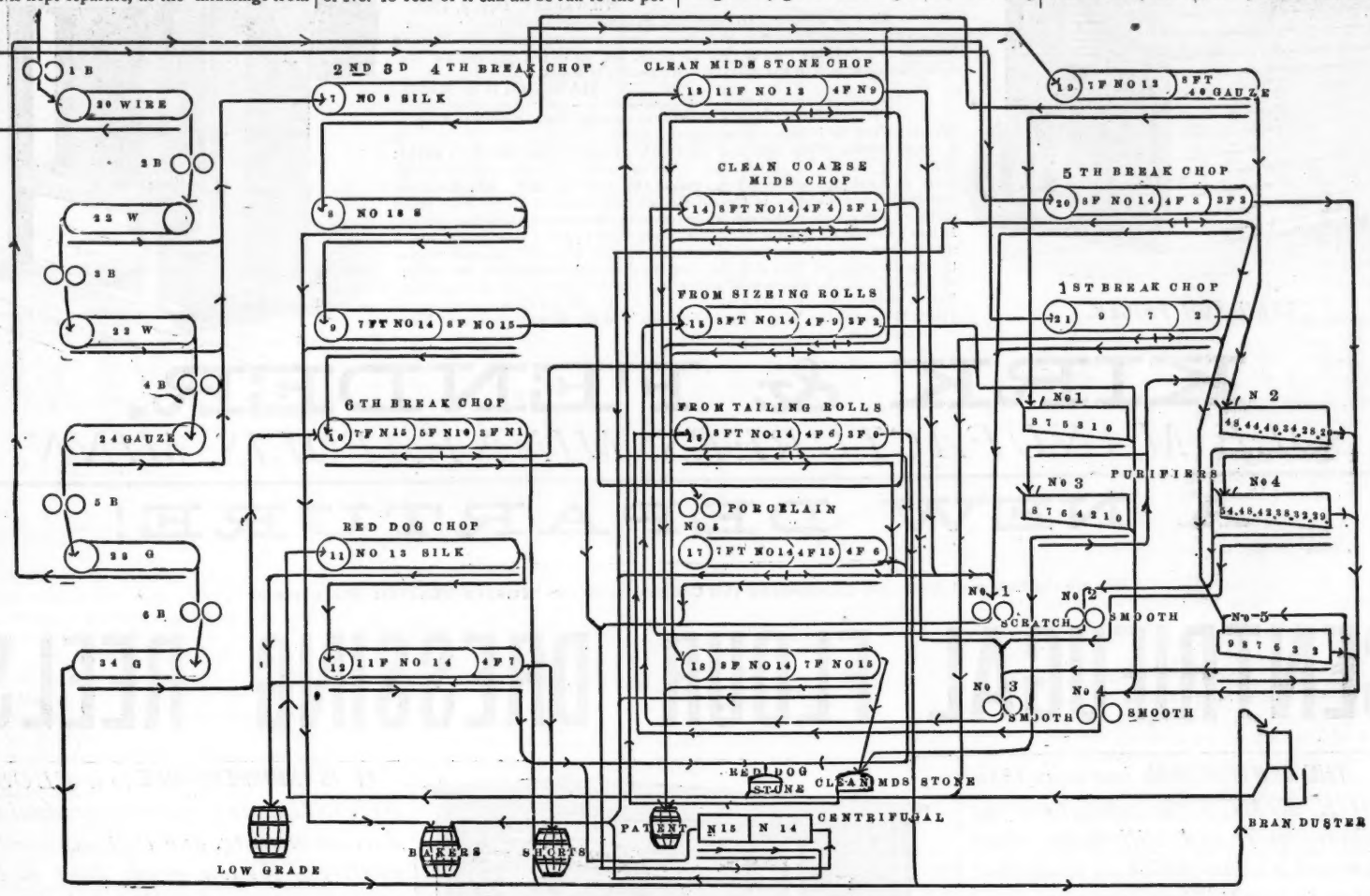
No. 5 roll is porcelain, and is fed from tail of No. 9 reel. The No. 9 cloth on 13 and 15 reels, can be run to it if desired. Chop from roll to No. 17 reel.

STONE.

Clean middlings stone is fed from No. 2 purifier and tail of No. 18 reel. Chop from stone to No. 13 reel.

Red dog stone is fed from the No. 0 cloth on tailings reel No. 16, the tail of 17 reel, and tail of centrifugal reel. Chop from stone to No. 11 reel.

It will not require much new cloth to make the changes, as most of them can be worked over to suit.



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McMINNVILLE TENNESSEE

Sole Manufacturers and Proprietors of the

Eagle Stone Roller Mill

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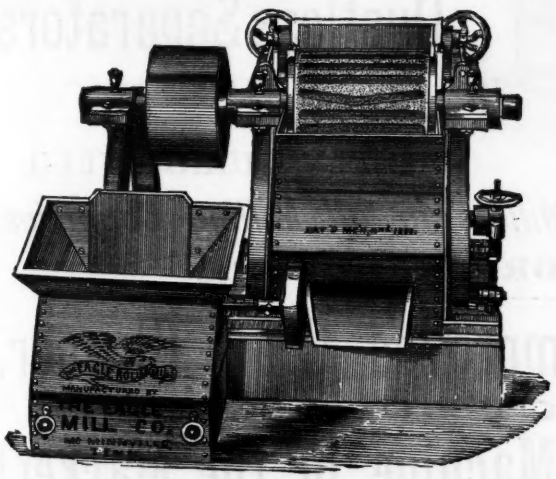
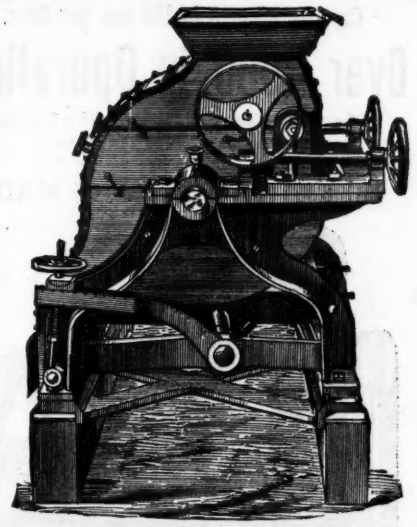


Rising Sun Purifier



The Highest Results and Satisfaction Guaranteed.

Thirty Days' Trial Allowed to all Purchasers.

The **EAGLE STONE ROLLER** *has no equal for regrinding either first, second or third Middlings or Bran. Beats any Metal or Porcelain Roll. Guaranteed to do so and Fifty per cent. cheaper, quantity and quality considered. Have hundreds in use and certificates in abundance proving our claims. They grind perfectly cool and even, and are easily kept in order.*

THE RISING SUN PURIFIER

ENTIRELY NEW PRINCIPLES.

No Middlings Purifier on Earth will half-way equal the "RISING SUN" on any grade of middlings. The same machine is the best Scalper ever offered to millers. Has more capacity with less power and space required.

This Machine Will Do More Than Twice as Much Work as Any Other Purifier & Scalper.

Sold for about half the money of any other machine for the same purpose. Thirty days' trial allowed to purchasers. Address

AGENTS: TALBOTT & SON, RICHMOND, Va.
MUTSCHLER & ESSMUELLER, ST. LOUIS, Mo.

EAGLE MILL CO.,
MC.MINNVILLE, TENN.

GRATIOT VERTICAL ROLLER MILL

A RECOGNIZED SUCCESS.

REDUCTION OF WHEAT TO FLOUR BY GRANULATION.

Various mills in operation giving better results than other Gradual Reduction Systems.

Eighty per cent. of sound sharp middlings guaranteed, out of which 70 per cent. of a high patent can be made, 25 per cent. of a good clear, and only 5 per cent. of low grade flours.

Yields equal to those of stone mills. Old mills can be changed over to this system for one-half the cost of any first-class system and with better results. Also specially adapted to small mills. Great saving of power.

Millers who are contemplating making a change should write for samples, and if possible call upon us personally and visit the mills in Chicago and vicinity. For particulars address the

GRATIOT MANUFACTURING CO.,

67 WEST WASHINGTON STREET, CHICAGO, ILL.

Only Reliable Cockle Separator in the World!

KURTH'S Pat. Improved Machine,

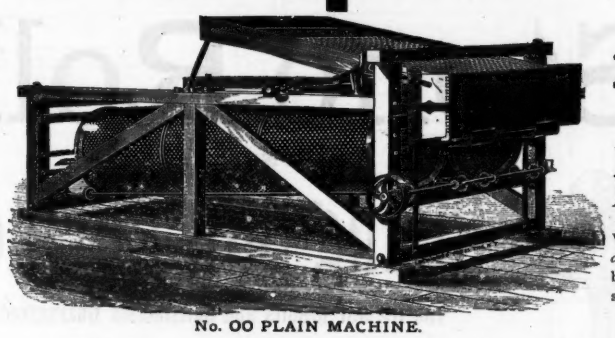
THE STANDARD.

Capacity from 15 to 250 bus. per Hour.

Over 2000 in Operation.

Every Machine is Furnished with a Grading Device for Grading the Grain, For which

NO EXTRA CHARGE IS MADE.



No. OO PLAIN MACHINE.

Also Built in Combination With

RICHARDSON'S

Double or Single Suction

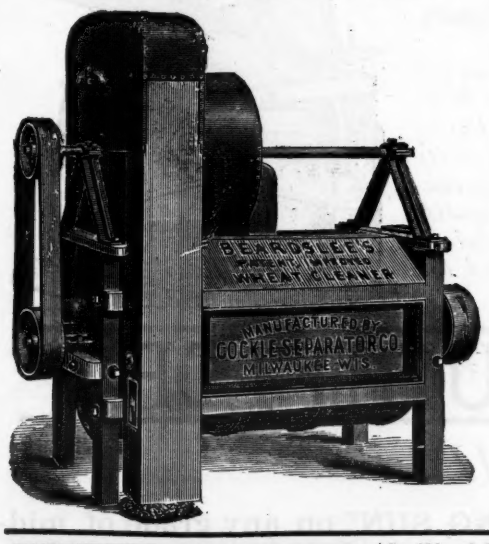
Dustless Separators

Which we furnish in combination with Cockle Separator at actua *cost* of manufacturing. Parties wanting the *two machines* can buy them combined at about the price of any common dustless separator.

FULLY GUARANTEED.

Universally Adopted by Millers in all Milling Countries.

PERFECT WORK. NO WASTE.



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A PERFECT SUCCESS!

The Most Durable Machine in the Market!

Thorough Cleaning. No Injury to the Grain. Fully Guaranteed.

Send for new illustrated catalogue giving you hundreds of testimonials. Address

COCKLE SEPARATOR MANUFACTURING CO.,

GENERAL MILL FURNISHERS,

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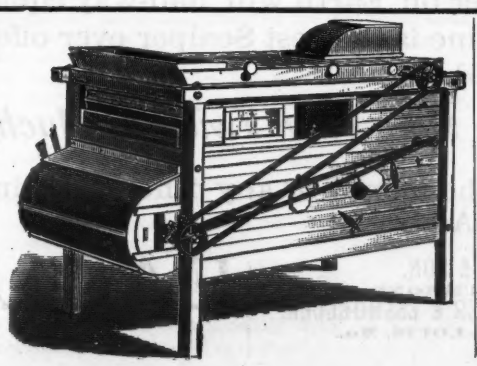
Rollins' Newly Improved FRENCH MIDDLINGS PURIFIER,

Has as much capacity and is warranted to do as much and as good work as the No. o machine of any other make.

It is fully Licensed under the Smith and all Conflicting Patents.

Send for new catalogue containing full particulars and names of users in almost every State and Territory.

CHAS. G. ROLLINS,
Minneapolis, Minn., U. S. A.



"Perfection"

HIGHEST TEST, 85% LOWEST, 82%

This water wheel is now admitted by the best mill owners to be

THE MOST PERFECT IN THE MARKET.

MARK! IT NEEDS NO PENSTOCK

And thereby saves its cost two times over, besides having it where it can be seen and got at.

The best and largest and richest mills have adopted it. 100 wheels sold in 1881, 200 sold in 1882, 400 will be sold in 1883. Just think of it, 300 wheels in two summers. It must be a good one to sell so fast. Send for elegant new book.

C. RIDGWAY & SON, Coatesville, Penn.

Report on India Wheat.—II.

NOTES.

Weight per bushel of Wheats.—These experimental workings have brought to light a fact well worth noting, viz., that the rule so generally held amongst wheat sellers and buyers, and thought to be without an exception, that the greater the weight of a bushel of wheat, so much higher must it rank as a flour yielder, and consequently in value, must now be regarded as true only within a strict limit. A high standard of weight for any given cubical measurement, is, no doubt, a good criterion as to dryness of condition and soundness of the grain, for any dampness in grain causes it to weigh *lighter* per bus hel or quarter of measurement instead of heavier (a fact that will surprise the uninitiated). But experienced parties will study with interest the three columns in the synopsis of the wheat, showing "weight of 100 separate grains" of each wheat, "weight per bushel," and "yield of flour." Taking equal weights of the four Indian wheats, it will be found that No. 3, weighing 60 lbs. per bushel, yielded more flour than No. 1, weighing 64 lbs.; also that No. 4, weighing 60 lbs. per bushel, yielded more flour than No. 2, weighing 62½ lbs. The reason of this is evident. The four wheats were equally and perfectly dry, and probably would have weighed the same per bushel had the size and the shape of the grains of each wheat been the same, but they differ widely in this respect, Nos. 1 and 2 being medium or small, and Nos. 3 and 4 long and arched. Hence the latter will not fill into a measure as closely as the former, leaving larger spaces unoccupied, and causing any given measure to weigh less in consequence. The old rule holds good for wheats the grains of which in size and shape are similar, but it will only mislead if applied to Indian wheats like Nos. 3 and 4. It was, doubtless, adopted at a period when it was the custom for all wheats to be sold by measure, and for sales by measure it is still a correct guide, but as sales are now made by weight rather than by measure, the rule can only safely be applied within the limits indicated.

After a careful examination of the wheats, of the flour and offals, of the bread obtained from the flours, and the records of the workings of each process, we have further to report :—

The four lots of Indian wheats were delivered to us, packed in the ordinary gunny bags, and all in good condition. None of them were sea damaged, nor had they suffered in any way from storage in the ship.

We examined the wheats, and found them to be good representative samples of—

No. 1, Indian fine soft white,
No. 2, Indian superior soft red,
No. 3, Indian average hard white,
No. 4, Indian average hard red.

but were, with the exception of No. 3, much cleaner and freer from impurities than these wheats generally are.

The leading characteristics of these wheats, details of which are in the tabulated statement, are as follows :—

The fine soft white (*Lot 1*).—Grains white, medium sized, and regular; fairly mellow; skin thin; handled exceedingly well; weight per bushel, 64 lbs., which is only equaled by specially fine samples of any wheat. Clean and free from seeds; contained 2 per cent of weeviled grains.

Results of the milling and baking prove it is an exceedingly good and useful wheat; the flour being great in quantity, of pure white color and superior bloom, and with a slight beany flavor. It is more suitable for markets requiring *white* flours rather than strength, owing to its containing an exceptionally low percentage of gluten. The yield of bread from it is very large.

Superior soft red (*Lot 2*).—Grains dull light-brown, with about 5 per cent white wheat. In size, half medium and half small, semi-hard; skin thin; handled very well; weight per bushel, 62¾ lbs., which is only reached by fine wheats. Clean and free from seeds; contained only a trace of weevil.

Results of the milling and bakings prove it is a good and useful wheat; the flour being great in quantity and of medium color and an admixture of 10 per cent fine soft white; skin thin; handles well; contains a little gram, seed, linseed, and barley. Weight, 64¼ lbs. per bushel. Weevils only a trace.

Results of the milling and bakings prove it produces a common and dry strong flour, in almost unequaled quantity. In color, inferior. A profitable wheat for millers, as it takes 76 per cent water to render it sufficiently mellow for use. The yield of bread is exceptionally large, making it a "bakers' " flour as well as a "millers'." (See remarks on lot 3.)

For characteristics and particulars of the other wheats and flours obtained from them, we beg to refer back to the tabulated statements, and need here only further remark respecting them:

No. 5. English.—The yield was poor, undoubtedly owing to these wheats this season being in poor condition, and colour of flour not equal to that from this wheat when in prime condition.

No. 6, Australian, and No. 7, New Zealand.—High yields. Colour and bloom of flours superior, and other characteristics very similar, except that Australian is decidedly stronger.

No. 8, Californian.—These wheats would be improved if the small quantity of barley and oats they so frequently contain could be kept out which cannot be entirely removed by any separating machines, as they slightly depreciate the flour. Whilst below Australian and New Zealand in yield and strength (the former arising from its somewhat thicker skin), perhaps in the special points of color and bloom this flour, and that from American red winters (No. 9), are unequaled.

No. 9, American red winter.—The same remarks as on Lot 8 as to yield and quality of the flour.

No. 10, American spring.—Medium yield, arising from thickness of the skin, and the cockle and the buckwheat present. The flour is of good color and superior strength.

No. 11, Russian Saxonska.—Medium yield of flour, good in color, and in strength quite unequaled. An invaluable wheat for mixing with weaker ones to add strength to the flour. Of gluten it contains (by the water test) 22.1 per cent (dry), or double of that contained in the English lot.

No. 12, Russian Taganrog.—Good yield, color of flour good, with much yellow bloom, and for strength ranks next to Saxonska (No. 11).

No. 13, Egyptian Buhi.—Ranks only one degree above Saida (Lot 14).

No. 14, Egyptian Saida.—Deservedly ranks as the poorest wheat in the market; possesses no good qualities, and is not nearly worth its price.

Average hard white (Lot 3).—Grains light yellow and semi-transparent, with a little hard red; skin thin; in shape long and arched. The wheat itself was clean, but intermixed there was about 3 per cent hard dry bits of mud (which spoil the handling), otherwise free from admixture. Weight 60 pounds per bushel. Weevils only a trace.

Results of the milling and bakings prove it is a useful wheat for markets requiring stength; flavor beany; the gluten (by water test) averaging 12 per cent. This wheat (and No. 4) are probably unsurpassed by any other wheats in the world as regards the quantity of flour yielded. In color, medium. Specially useful for mixing with very damp English wheats to bring them into condition for milling. It is also a profitable wheat for milling, owing to its requiring 8.4 per cent water to render it sufficiently mellow for use.

To this wheat, and to the Indian average hard red (lot 4), must be awarded the distinction of *producing more bread than any other flour*, making it a "bakers' " flour as well as a "millers'." The yield of bread is exceptionally large.

Average hard red (lot 4).—Grains very large and coarse, long, arched and pointed; in color dull brown, and semi-transparent, with strength; with a slight beany flavor, and containing an average of gluten. Suitable for markets requiring flours of medium strength and color. The yield of bread is exceptionally large.

The two Systems of Milling.

That of *grinding under millstones* has been in operation from time immemorial, and with but slight improvements, those of recent years relating chiefly to the dress or separation of the offals from the flour by the employment of cylinders lined with silk instead of wire, within the dressing machines. This system produces flour of one "run" or quality, and does not offer facilities for the production of flours of high, medium, and low grades from the same wheat. Unless care is taken in the grinding to keep the stones sufficiently high, the flour is apt to be "dead" or "killed," that is, to lack anything approaching to granular character, owing to the stones having been employed too close together. On the other hand, if the stones are worked too "high," a loss results from all the flour not being removed from the bran. It is inseparable from this grinding system that some of the outer skin or bran is also torn or ground into flour, so preventing the attainment of perfection of color. It is well adapted, however, for the production of common ordinary flours, for, as will be readily seen, it must produce a greater quantity of flour than a system which more thoroughly separates the offals.

By the roller system flour is produced by flattening or squeezing the grain through a series of rollers, as distinguished from the tearing or grinding of millstones. The wheat is first cracked through a first set of rolls and its sieve, so separating a small quantity of flour and dirt, the latter being liberated out of the crease of the wheat, and is not removable by any system of brushing or blowing. It is important to get rid of this impurity at the initial step of the process, as it then does not get incorporated with the subsequent flours. The cracked and purified wheat is then passed on through other sets of rolls and sieves, and rendered into middlings and flour. From these middlings the higher grades of flour are made; they are first freed from all light particles of the skin by being passed through "purifiers," and then through several successive sets of rolls and silks, each set yielding flour of a different grade. Each grade may be kept separate, or caused to run together into a mixing worm and so become one run of flour. (The wheats operated upon by this system in these experimental workings were so rendered into flour of one run or quality.) A leading feature in this system is that the germ of the wheat, in which lies the chief portion of the coloring matter of the grain, is not torn or ground into flour as it is by the system of grinding under stones, but the action of the rollers is to squeeze or flatten it, and, from its soft and oleaginous nature, to increase its size, so rendering its separation from the flour easy. The outer skin or bran is also freed from its adhering flour by the same pressure. But, inasmuch as hardly any of the bran is crushed into flour, the yield of offals must be larger than from the grinding system. The advantages of the system are, less liability to "kill" or destroy the granular nature of the flour, the removal of the dirt found in the creases of the wheat, and the separation of the germ, so rendering the attainment possible of a high

SYNOPSIS.

THE FLOUR AND BREADS.—RESULTS OBTAINED IN CONVERTING THE FLOURS INTO BREAD.

NOTE.—Of Lots 1, 2, 3, 4, Indian Wheats, the stone flours and roller flours were made into bread. Of Nos. 5 to 14 inclusive the roller flours only were made into bread. Figures in Roman.—System: Grinding under millstones. Figures in **heavier type.**—System: Crushing between rollers.

No.	Wheat.	Quantities used.					Yield of bread when cold.	Percentages.		Color, taste, and texture. (Taking 10 as the standard of fair average quality of London households bread made from London flour, households and whites in equal proportion.)					Remarks.
		Flour.	French yeast.	Liquid potato ferment.	Salt.	Water.		Percentage of bread to flour.	Percentage of water to flour.	Color, exterior.	Color, interior.	Flavor.	Texture.	General characteristics.	
		Lbs.	Lb.	Lbs.	Lbs.	Lbs.	Lbs.								
1	Indian (fine soft white)	280	1	30		141.4	364.0	130.0	50.5	10	11	7	8	11	Loaf small and rather dense.
	" " " "	280	1	30	3½	149.6	367.5	131.2	53.4	13	13	9	9	12	Ditto.
2	" (superior soft white)	280	1	30	3½	141.6	372.0	133.0	50.6	8	10	7	9	10	Ditto.
	" " " "	280	1	30	3½	148.0	362.0	129.3	52.3	12	13	9	10	11	Ditto.
3	" (average hard white)	280	1	30	3½	141.0	370.5	132.4	50.8	6	7	7	10	7	Ditto; texture more elastic.
	" " " "	280	1	20	3½	149.6	365.0	130.3	53.4	10	9	9	10	9	Ditto, ditto.
4	" (average hard red)	280	1	30	3½	145.2	376.6	134.5	51.8	5	7	7	10	6	Ditto; too ricey.
	" " " "	280	1	30	3½	147.4	365.0	130.3	52.2	9	9	8	10	8	Ditto, ditto.
5	English	280	1	30	3½	130.0	352.0	125.7	46.4	13	12	13	10	10	Loaf medium. Bloom not equal to best English after good harvest. Flavor very good. Fine silky texture.
6	Australian	280	1	30	3½	134.2	355.4	126.9	48.0	12	12	12	10	11	Loaf medium size. Texture good; silky.
7	New Zealand	280	1	30	3½	132.0	349.0	124.6	47.1	12	12	12	9	10	Loaf medium size. Texture little weak. Dough of putty nature.
8	Californian	280	1	30	3½	136.8	364.0	130.0	48.9	12	12	12	9	10	Loaf medium in size. Texture a little weak. Crust too pale.
9	American (winter)	280	1	30	3½	130.0	346.0	123.5	46.4	13	12	12	10	11	Loaf medium in size. Texture good.
10	" (spring)	280	1	30	3½	130.0	354.0	126.4	46.4	8	10	10	12	9	Loaf lofty. Elastic texture. Handles kindly.
11	Russian (Saxonska)	280	1	30	3½	130.0	356.0	127.1	46.4	8	9	9	13	9	Loaf very lofty. Very elastic texture; so strong operatives complained required too much strength in handling it.
12	" (hard Taganrog)	280	1	30	3½	145.4	354.5	126.6	51.9	10	11	9	12	9	Loaf lofty. Fine bloom. Texture good. Red crust.
13	Egyptian (Buhi)	280	1	30	3¼	136.8	362.0	129.3	48.9	7	6	6	7	5	Loaf possessed no good points.
14	" (Saida)	280	1	30	3½	144.4	358.0	127.7	51.6	6	4	4	6	4	Ditto; a degree lower than above.

standard in the character, color and bloom of the flour. It is attended with a slightly increased yield of offals, which, of course, means the quantity of wheat required to produce a sack of flour must be proportionately increased; as a rough average, say 400 pounds wheat for rollers against 380 pounds for stones. Offals of very similar quality are produced by both systems, viz., coarse middlings, pollard and bran, except that the bran from the rollers is smaller than from stones, and is consequently slightly lowered in value, say about 10s. per ton. The percentages of offals yielded by each system are given in the tabulated returns.

In these experimental workings the meshes of the silks through which the flours were dressed were as follows:

In the grinding process, silks No. 12.
" roller " " " 13(or one shadefiner.(

The offals.—This is a subject of minor importance as compared with the yields and qualities of flour and bread, and it is only needful to state that, of the offals included in these returns, the middlings from both systems of milling were worked down to the quality known on the Mark Lane market as "coarse mids., fair average," the bran to "bran from stones" and "bran from rollers," and the pollard to "pollard, fair average."

Gluten in bread.—From an economical standpoint it may be said the nutrition of bread mainly depends on the gluten, or, in other words, the nitrogenous or albuminous compounds or flesh formers, contained in the flour from which it is produced. The starch would be equally important if it could not be obtained from other sources in as suitable a form at a much cheaper rate—as in rice, Indian corn, and potatoes. But its gluten is not obtainable from other sources, of equal quality and flavor. Hence its special value as a constituent of wheat. Further, upon the gluten in flour depends the elasticity of the texture of the bread, and consequent freedom from density or heaviness. It is generally believed that upon the percentage of gluten in flour depends the *yield* of bread that may be obtained from it, as illustrated by the Hungarian flours, which are amost unequaled for yield of bread, and rank high in gluten, but this is erroneous, as proved by the experimental workings now under review. It will be found that the flours high in gluten do not produce the most bread, unless, at the same time, they possess a high degree of *dryness*, for it is upon the *dryness* of a flour that the yield of bread mainly depends, and not upon the gluten. The two lots of flour from Russian wheats (Nos. 11 and 12) are those which are highest in gluten, yet they do not yield as much bread as any of the four Indian wheats (Nos. 1 to 4) and the difference in yield from the latter would have been still further increased had they not been previously mellowed with water, as noted, before milling; confirming it is the dryness of a flour that determines the yield of bread.

Another erroneous idea is, that upon the quantity of gluten present depends the height or loftiness of the bread. This would be correct, provided the fermentation of the dough were in all cases carried to a precise degree; but it varies widely, and it will be found the loftiness or height of the bread depends chiefly upon a high degree of fermentation, provided it be not carried to great excess, rather than upon the gluten. This is illustrated by the bread consumed in the London district, which is made from flours rich in gluten, yet is not so high or lofty as the bread consumed in some other districts, which is produced from flours containing much less gluten, the popular taste in London demanding strength, nutrition, and then fair color, whereas, in the districts referred to, a high degree of whiteness is demanded before nutrition.

The four Indian Wheats.

In addition to the particulars contained in the foregoing returns, we have to report that to anyone experienced in the requirements of the wheat and flour markets of the United Kingdom and, indeed, of most other countries, it will be evident there is no probability of these Indian wheats coming into demand for manufacture into flour *without a liberal admixture* of other wheats. They all possess in a marked degree the same characteristics of great dryness, and a distinct beany and almost aromatic flavor, inseparable from wheats grown in the climates and soils of the tropics. Also the flours are ricey, the texture of the bread is too close, and the crust is hard and brittle. But these characteristics do not detract from their usefulness in any important degree. As is well known, a miller cannot show skill in his craft to greater advantage or profit than that with which he selects his wheats, and mixes his grists, so as to produce to best advantage a flour from which bread can be made of the colour, bloom, strength, and flavor desired, and with all a good yield.

We pronounce them to be exceedingly useful wheats, in fact hardly equaled for what is deficient and wanting in the English markets by any other wheats. Their chief characteristics are just those in which the wheats grown in our variable climate are most deficient. Their great dryness and soundness renders them invaluable for admixture with English wheats that are in any degree out of condition through moisture, and the great proportions of the wheats harvested here have been in that condition for some years past, a condition that must prevail in all other than that of wheats harvested and stored during fine and favorable weather; and this the English farmer knows, greatly to his cost, is a state of climate that is by a long way the exception rather than the rule. Added to their dryness, the thinness of the skins of these wheats and consequent greatness of the yield of flour, must always place them in the front rank as a "millers'" wheat, whenever they are handled with reasonable intelligence and skill.

Such unprecedented yields of flour, as shown by these wheats, ranging (by ordinary grinding) from 77.46 to 80.52 per cent against English 65.2 and American spring 72.2, speak volumes in their favor, and their value is still further increased by another point of merit of almost equal importance, viz., a larger percentage of bread can be obtained than from any other of the flours included in this review.

That, for the best of these Indian wheats (the fine soft white), on the day they were valued on Mark Lane market, a price was offered as high as that of American winters, New Zealand or English (see list of values in synopsis), proves that the great value of the Indian wheats is becoming recognized here, a knowledge that will ere long extend to all our markets. The other lots of Indian (Nos. 2, 3, and 4) were lower in the value to the extent of 4s. to 5s. per quarter, as might almost have been expected from the difference in color and other characteristics; still, as these latter wheats become better known here, this difference in price will be somewhat lessened. Their beany flavor is not a serious obstacle, as fair average deliveries, when well cleaned and properly dealt with, can be employed in the proportion of 25 per cent to 50 per cent along with home-grown or other wheats, such as Americans, possessing a fine sweet milky, or nutty flavor.

Glancing at all the facts here elaborated, it is evident that these wheats afford a larger margin of profit both to the miller and baker than any other.

We venture to record a conviction we have long held, strongly emphasized by the result of these experimental workings, of the measureless importance of the great resources of the Indian empire being developed to the utmost in producing wheat for this country. Farmers here are finding that to live they must produce beef and mutton rather than grain, hence the greater need of resources of supply under our own control.

It is evident such a conviction is common to the members of your honorable council, as testified by their unceasing efforts in this direction. And we desire heartily to congratulate them upon the important fruits arising from their labors. The character and general excellence of the Indian wheats are improving with the deliveries of each successive season. The Indian wheats now specially under review were delivered to us in excellent condition (see details) with freedom from dirt (except lot No. 3), barley, gram, and other impurities, also with the freedom from weevil, rarely equaled by Indian wheats, except the prime parcels of the past season, and there is no doubt an outlet in this country and the European continent for unlimited quantities at prices that shall prove remunerative to all parties concerned, either in their growth, transportation, or conversion into flour or bread.—We have, &c., McDOUGALL BROS.

10, Mark Lane, London, 15th December, 1882.

The Old and the New.

BY BRIDGETREE.

The annexed diagrams of the old and the new bolt chests with their bolting systems, presented to the readers of the NORTHWESTERN MILLER, hardly need any explanation, and are given to illustrate the great changes that have been made in the bolting apparatus of the flour mill of comparatively a few years ago and one of to-day. It is no fancy sketch, but *bona fide* representations of bolt chests as they did and do exist to-day, taken from mills of world-wide reputation that have taken sustained important parts in the business in their respective localities.

Fig. 1 is an old-fashioned chest, or rather an old-fashioned bolting system that was almost universally used throughout the country twenty years ago. It is meant to show one-half of the chest, as is also Fig. 2.

It is surprising what great changes a few years make in all manufacturing establishments; so great indeed that they involve the necessity of a complete change in the mode of doing business, even without taking into consideration the changes that have been made in the machinery. It is, of course, not seen so plainly by those who continue in the business as by those who step out of it a few years and re-engage in it again. Some one has given as a rule to find out how the world has used us and how to gauge our present condition, to hold up in comparison the past and the present. With this object in view the accompanying cuts are given that the reader can get a good idea of the great advance that has been made in the bolting system of to-day over that used the comparatively short time of twenty years ago. As this is written with the object to instruct, a few words in explanation may not be out of place.

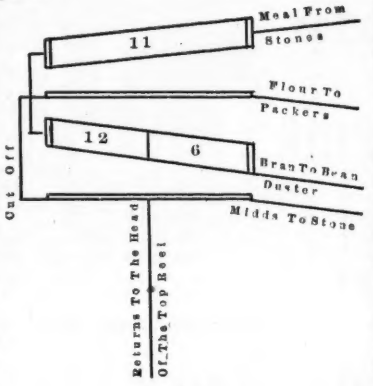


FIG. 1.

The reader will see on studying Fig. 1, that it consists of two reels, one above the other, inclined in opposite directions. The tail of the upper reel runs into the head of the lower one, which makes three separations, returns, middlings, and bran. It was arranged to cut off about one-half of the upper reel, which passed down between the lower reels and was mixed with what passed through the cloth marked No. 12. The cut-off slide was arranged to slide underneath the top conveyor, worked by a rope from the head of the chest. The advantages of this slide were that it permitted of a very much finer adjustment than is to be found in the average chest of the period, for the reason stated. The object of returning was to so "temper" the meal that it would meet the requirements of the different kinds of wheat handled, hard or soft, dry or wet. Whatever may be said against the returning operation of a bye-gone period, it can be said with truth that it served the object desired, effectually. A great many attempts had been made to draw off flour from the head of the lower reel of this class of chests, but it never was a success, owing to the difficulty of getting a flour free from bran specks; not because the cloth would not bolt clear, but because it was almost impossible to keep the gather boards at the head of the lower reel tight. The speck spout was in connection with the lower conveyor, discharging into the returns. What passed through the No. 12 cloth was returned to the head of the upper reel; what passed through the No. 6 to the middlings stone; what tailed over the No. 6 was bran, and went to the bran duster.

Fig. 2 is a 12-reeled chest, one side of it being shown. It is one of the best arrangements ever put into a mill, and is used in the northwest by some of its best mills. It is of

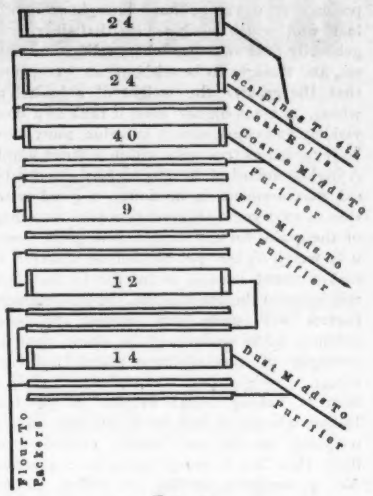


FIG. 2.

course only adapted for a large mill, and is quite expensive. The two upper reels are the scalpers, covered with grits gauze, as marked, tail to the 4th reduction. The next, or No. 3, is the coarse middlings reel, and the tail is spouted to the graders or purifiers. The upper conveyor of this reel is in connection with the coarse middlings spout by shutting slides under the tail of the reel. Whatever is desired to be put into this material the operator can do so, No. 4, or the fine middlings reel is arranged the same as No. 3.

What passes through the No. 9 or as much as the operator desires, is carried to the head of the first flour reel. What passes through the cloth is flour and can be sent direct to the packers. What is cut off and the tail, pass into the head of No. 6 or lower flour reel. This material is about the same as what has been termed returns in the description of No. 1 chest. What passes through this cloth is flour, and all, or only what the miller desires, can be sent direct to the packers. The lower conveyor is in connection with the tail of the reel, and what is taken out of the flour passes into the dust middlings, and is spouted direct to purifiers. All these reels are on the same plane. The specks are spouted to the conveyor feeding the next reel below. This arrangement makes it possible to draw off clean material or only that which passes through the cloth from each of the reels. The cloths shown on this chest are considered to be a good combination for any mill of the class. The combination of the reels and the arrangement of the slides and conveyors, it will be perceived, will meet any and all the requirements that can possibly arise in the actual work of a mill. It may be necessary to clothe the reels differently on some classes of wheat; that of course is understood.

A recent discovery on the head of the Cowlitz river reveals and establishes the fact that Washington territory can now boast of the grandest waterfall in the known world, its height being 500 feet. These falls are 300 feet higher than the famous Niagara falls. The Noosack Indians assert positively that waterfalls higher than the tallest fir, pine or cedar tree are to be found on the extreme headwaters of the Noosack river, in this county. As that section of the county has never yet been explored by the white man, there is no good reason for doubting the statement. From the comparison given by the Indians, these falls must beat least 475 feet in height, which would lay over the famous Snoqualmie falls, of King county, by at least 200 feet.—*Whatcom Reveille.*

R. H. Sparks & Co., New York stock and grain brokers, recently assigned to Jas. A. Patterson, giving preferences to Mrs. Frances M. Munger, $5,000; Belle E. Parks, $5,000; Bank of the State of New York, $18,000. Sparks & Co., were connected with Nichols & Co. the bankrupt Chicago firm, and the latter preference is conditional that the bank abandon all suits against them in Chicago or elsewhere.

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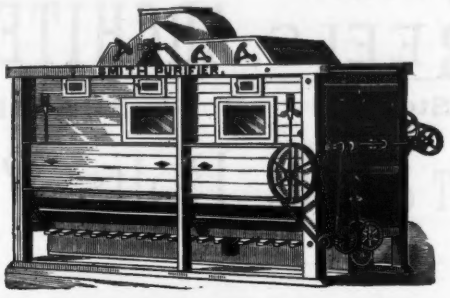

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at their Cleveland meeting, held Jan. 31, disclosed the fact that the manufacturers and purchasers of almost every Purifier now offered to Millers are liable to claims for royalty. To secure our patrons against damage from this source we have, at great cost, procured of the Consolidated Middlings Purifier Co. license under all their patents on Purifiers, more than eighty in number. Our license to use the traveling brush and graded air current (without which a successful purifier can not be built) is exclusive. The importance of these facts to purchasers of purifiers cannot be over estimated.

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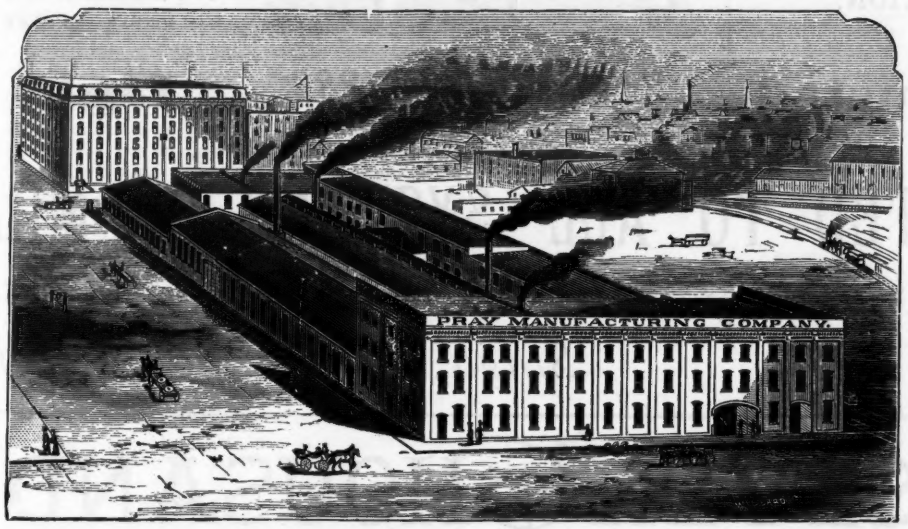

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The Canadian Decision in The Smith Case.

We find in the Toronto *Globe* of July 11, a long and exhaustive article on the purifier suit just decided by the supreme court in favor of the Smith patents. It is too long to quote entire and contains the decree of the court which we have already published, but the following portion of it will prove interesting to our readers both in this country and Canada.

"The important case of G. T. Smith and others vs. John Goldie and Hugh McCullough has just been decided by the supreme court. It arose out of a patent granted to George T. Smith for an improvement in middlings purifiers, being the combination of air current, shakers and brushes, which is essential to all air-working middlings purifiers. Smith was the first inventor, the invention having been made in the United States in 1871, and the effect of the invention has been to alter the whole process of milling on this continent. Almost all extensive mills now use this invention.

Smith's right to a patent in this Dominion has been long contested on one ground or another. The objections date from 1876. An application was made to the commissioner of patents under 28th section of the patent act, to have his patent declared void for a breach of the conditions of forfeiture contained in the patent, on the ground that he had imported contrary to the act, which has a protective clause; and also that he had failed to commence the actual manufacture in Canada pursuant to the same clause. Smith appeared by the facts to have been guilty of a failure under the literal meaning of the act; but by a decree of the commissioner of patents it was laid down that the act must be interpreted liberally, and that a readiness to manufacture on request was equivalent to actual manufacture, and that the importation of a single machine as a sample or for the purpose of introducing the invention into Canada was not a violation of the spirit of the act. When the bill was filed in 1879 against Goldie & McCullough, of Galt, the defendants raised the same question as a matter of defence. On behalf of Smith it was contended that the commissioner's jurisdiction was exclusive in the matter, and that the decision he had given could not be reviewed or overruled. The case was heard before the chancellor of Ontario in June, 1880, who decided against the plaintiff on that point. The case was carried to the court of appeal, where it was heard in the fall, and the court were of the opinion that the chancellor was wrong, and that the commissioner's jurisdiction was exclusive, but dismissed the appeal on other grounds, raising the question of patentability. They considered Smith's invention not to be patentable on account of the previous inventions, although none of them contain the whole of the parts arranged as in the plaintiff's patent, nor were they equally effective.

The case was taken to the supreme court, where it was argued in November, 1882. Decision was given on June 19 last in favor of the plaintiffs on all points. Several other important questions of patent law arose, among others the effect of the public use of the patent by the plaintiff in the United States for a year before his application in Canada. This point was decided in favor of the plaintiff, the court holding that such use does not affect a patent afterwards granted in Canada. The question was also raised of the effect of patents granted to one Lacroix and one Sherman prior to the plaintiff's application in Canada, these parties appearing to claim very nearly the same invention. The court found in plaintiff's favor on the facts that these parties had derived their knowledge from him and that a prior patent in Canada to any person who is not the true inventor does not interfere with the rights of the true inventor.

The facts of the case are set forth in the following extract from the judgment of Judge Henry:

"The claim made in this application was for a machine called a middlings purifier, consisting of a combination described in his patent. The object was to remove from what was called the 'middlings' produced in the grinding of wheat, by the operation of specific gravity, light fibrous impurities and light particles of grain required to be separated to produce the finest quality of flour. The process is their 'purification' as well as their separation, the latter being all that can be effected by bolts or sieves only. It is alleged in the appellant's factum and sustained by evidence, that before the plaintiff's invention, it had been the object of millers to make the least possible quantity of middlings, as it had been found impossible to separate the fine particles of bran and other impurities from the coarse flour granules by sifting, and the middlings when re-ground made an inferior quality of flour. Since Smith's invention and discovery of the process of purification this practice has been reversed, and millers now seek to make only coarse flour or middlings at the first grinding in order to obtain the benefit of the purifying process, as it has been found that by that process certain light fibrous impurities can be removed which the old process of sifting left even in the finest flour. The process of purification is by causing a thin stream of middlings to descend a slightly inclined sieve or bolt, through the meshes of which a current of air is drawn up by an exhausting fan, so as to pass upwards through the middlings as they pass over or through the sieve or bolt. The current of air passing through this thin stream of middlings lifts and carries away the light impurities, leaving the pure middlings, which have a greater specific gravity, to be ground into flour. It was found, however, that the current of air from below the sieve or bolt by creating a resistance to the descent of fine particles passing through the sieve or bolt cloth clogged the latter so much that unless constantly removed the fan would fail to draw air through the cloth, the upward current of air would cease, and purification would not take place. The upward current of air through the sieve or bolt was the chief factor in producing the desired result, but it, when operating alone, by its action clogged up the sieve or bolt and its beneficial operation was prevented. Before the invention by Smith it was attempted to keep the sieve or bolt clear by hand brushing, but after a reasonable trial the attempt was found costly and unsatisfactory. Smith directed the experiments made in that way. When the owners of the mill where they were tried discontinued them, he (Smith) made the combination of the machinery for which the patent issued to him. The result was most satisfactory, and its value may be to some extent estimated when flour of such superiority was through its means produced as was worth and sold for about $3 per barrel more than that produced by any means previously known or used. It was in regard to the public interests a most valuable combination, and the public therefore became largely indebted to him who made it. Was that combination entitled through a patent to protection? The result in this case is produced by the combined and simultaneous action of the draft upwards created by the fan and the continuous operation of the brush or brushes worked by the machinery as described in the specification. It was a simultaneous action which produced the result. It could not have been obtained by the independent action of either. It was therefore to all intents and purposes a combination that produced simultaneous results. It is truly a combination of old elements, but it is one which the constituents, so entered into that each qualified the other. Referring to the judgment of the supreme court of the United States in Pickering, vs. McCulloch cited by Mr. Justice Burton in the court below, I may say that the constituents in this case are fully up to the standard therein adopted--they are joint tenants of the domain of the invention seized each of every part *per my et per tout*, and not mere tenants in common with separate interests and estates. By the co-operation of the constituents a new machine of a destinctive character and function was formed and a beneficial result produced by the co-operating action of the constituents and not the mere adding together of separate contributions."

The opinion of the court as to the power of the commissioner of patents was exhaustive, while on the question of patentable novelty, Judge Gwynne after reviewing a large number of patent cases in various countries, summed up as follows:

"That the combination of known things, so as to create a new and beneficial result is the subject of a patent, and that the combination first used by Smith does create such a result, there can, I think, be no doubt. The combination does, therefore, come within the meaning of invention, as applied to patents. The purpose for which the brushes are applied in this case is different from that for which they were applied in the Buckholtz machine for making semolina or cracked wheat. In the latter they were used for forcing upwards the particles of cracked grain which were too large to pass through the meshes of the bolting cloth. In Smith's patent they are used for the purpose of brushing downward the fine flour underneath the cloth, which, after having passed through, it is forced back against the cloth by the current of air going upwards, and which is thus impeded. The combination having been first used by Smith, and applied by him to produce a wholly new result, which is highly beneficial and of the greatest utility in the manufacture of flour, the combination is, in my opinion, the proper subject of a patent, and the infringement being admitted the plaintiffs are entitled to a decree in the court below for an account and a perpetual injunction. The appeal therefore should be allowed with costs, and a decree ordered to be entered for the plaintiffs in the court of chancery with costs."

Northwestern Miller Competition.

The NORTHWESTERN MILLER has to announce that it has begun a series of milling problems for the solution of which suitable cash prizes will be paid.

It invites contributions from millers, those employed in or about mills, from mill builders or their assistants. These problems will call for the practical working out of live mill questions, which will be given from time to time. Those who contribute should sign an assumed name to their papers, which should be accompanied by a sealed envelope with the real name on the inside, and the assumed name on the outside. These envelopes will be opened after the judges have rendered their decision.

All articles furnished as solutions to these problems will be the property of the NORTHWESTERN MILLER. In using them the contributor will be consulted as to his wishes in publishing his real name.

PROBLEM III.

A would be miller having only a limited amount of money at his disposal, wants the complete programme of a complete roller mill, having a daily capacity of 150 to 200 barrels, in order to determine just what machinery is necessary and the consequent cost of such a mill. It may be designed for either spring or winter wheat, but this should be plainly marked on the drawing furnished. The cleaning machinery should be shown and designated. Thirty dollars will be paid to the successful competitor, as soon after Aug. 25 as the various answers to this problem can be examined and passed upon. The publisher pledges himself that the committee shall be fair, able and perfectly disinterested.

THE NORTHWESTERN MILLER,
C. M. PALMER, Publisher.

SPECIAL NOTICES.

WANTED.

Situation by a first class miller. Has had 15 years' experience in stone and roller mills. Address M. S. G., office NORTHWESTERN MILLER.

OPEN FOR ENGAGEMENT.

A first class miller, sober, industrious, reliable and up to the times. Best of references. Correspondence solicited. Address P. O. Box 27, Kossuth, Ia.

SITUATION WANTED.

Competent machine shop foreman and draughtsman of seven years' experience in railroad and general manufacturing and repair shops, wants situation as superintendent or foreman in good shop. References to former situations and testimonials as to ability, etc., furnished. Address, SUPERINTENDENT, care NORTHWESTERN MILLER.

WANTED.

Young man two and one-half years as correspondent and amanuensis with one of the largest milling companies in this country, is open for engagement in a like capacity. Can give best references. Fully conversant with the export trade, and general routine office work. Address A. B., this office.

FOR SALE.

A good extra water power mill fed by lake water the year through. Has 4 runs of 4-foot buhrs; will carry 7. Has 12-foot head, and is located in a pleasant town; good schools and churches; one railroad. This is a good safe investment. Poor health the cause for selling. Address CHARLES FRENCH, St. Cloud, Minn.

A RARE CHANCE.

A water power custom flour and saw mill, excellently located, for sale at a bargain. Address, N. W., care of NORTHWESTERN MILLER, Minneapolis, Minn.

FOR SALE

At half price of new, two of Jonathan Mills' degerminators; run only about 5 months, all perfect in every respect. Reason for selling, prefer rolls in place of them. UNION MILL CO., Waterloo, Ia.

FOR SALE.

Five run of four foot buhrs, and one extra runner, extra selected stock, dressed and in good running order with spindles, lighter, screws etc.; one 30½ inch Leffel turbine in perfect order; pair of smooth rolls. Address VICTOR, (this office.)

Will E. D. Munger please send address.

FOR SALE.

Half interest in a 75 barrel water power mill. Exchange and local trade keeps the mill running every day in the year. For particulars address W. REDFEARN, Good Thunder, Blue Earth Co., Minn.

WANTED.

A thoroughly competent head miller, to take charge of a 500 barrel mill, located in a country town near St. Paul. Those sensitive about having their record thoroughly probed need not apply. Address, with full references, ROLLER MILL, Office of the NORTHWESTERN MILLER, Minneapolis.

ENGINE FOR SALE.

A 10x30 Reynolds-Corliss engine, built by E. P. Allis & Co., steam pump, 40 H. P. flue boiler with boiler front, grates, etc., all complete. Has been been used but a short time, and everything is in first class order. Will sell cheap for cash. HASHOW, MAISH & DAVIS, Variety Iron Works, Minneapolis, Minn.

WANTED.

By a German miller 33 years of age, who has had 18 years' experience, a steady situation, or would rent half of small mill—not over 150 barrels. Has been in this country 3 years, but would prefer a German mill. No objection to the country. Can furnish best of reference. Address C. B., this office.

MILL WANTED.

To buy or rent in or near some railroad town with good custom and home trade. Capacity from 30 to 50 barrels per 24 hours, or would take an interest in some good mill. Northern Iowa or Minnesota preferred. Address X. Y. Z., office NORTHWESTERN MILLER, Minneapolis, Minn.

SECOND HAND MACHINERY FOR SALE.

Having changed our mill to the roller system, we have a lot of machinery (second hand) for sale cheap. Parties desirous of getting good bargains on some buhrs, separators, and smutters can obtain further information by addressing Wahpeton Mill and Ele. Co., Whapeton, Dak.

SITUATION WANTED.

By a German miller and millwright who has had twenty-three years' experience and thoroughly understands modern milling, both roller and buhr process. Can furnish good recommendations. Has been in this country nearly three years and can speak English pretty well. Would engage in either building or running a mill. Can come immediately. Address WALARION MATUSZEWSKI, P. O., Box 77, Lisbon, Ransom county, Dak.

FOR SALE.

A splendid location for flouring mill or other manufacturing business at the west end of crossing of and between N. P., St. P. M. & M., and Moorhead Northern railroad tracks, with side tracks on each side, Moorhead, Minn. Buildings and a 100 H. P. Atlas-Corliss engine, etc., only one year in use, to be sold with real estate. The engine furnished since last January and is furnishing now the power to run the electric light machinery at good remunerative rates. For particulars inquire of RED RIVER MFG. CO., Moorhead, Minn.

BOOKS WANTED.

If you have any scientific, technical, reference or standard books, newspaper or magazine files, etc., suitable for a large general library which you want to dispose of for cash at a low price, send full description and price to the undersigned and you will receive a reply by return of mail. Old and rare, or modern engravings of merit are also wanted on the same terms. Address

LIBRARIAN,
Care NORTHWESTERN MILLER,
Minneapolis, Minn.

NEW MILL FOR RENT.

A new four-run steam flouring mill for rent at low figures at Conway, Ia. No other mill within ten miles. The mill is complete from top to bottom. Basement, three stories and attic; 14x20 engine; boiler 54 inches by 14 feet. Iron husk frame, belt drive, two buhrs on wheat, one on middlings and one on corn. One smooth roll on cut-off from purifier, and a corrugated roll on bran. No. 3 smut purifier with dust catcher. Six 18-foot reels with double conveyors. Plenty of cleaners and exhaust fans. Flour packer. Four sets of scales. In short, the most complete and finest finished four-run mill in Iowa. None but a good miller, with means, need apply. Address C. A. Donnell & Co., Conway, Ia.

NATIONAL MILLING EXCHANGE.

We are making an exclusive business of the sale and exchange of mill property, and so far as we know are the only firm in the country giving entire time to this matter. Persistent, judicious advertising and vigilance, coupled with experience, give us facilities for finding buyers unequaled by any concern in the country. We offer the largest number of good chances in all the western states and Canadas, so that buyers looking for locations should consult us. Send for latest list of steam and water power mills for sale and exchange all over the west.

J. M. MOORE, & CO.,
213 North Eighth Street, St. Louis

Cockle Separation.

A great many people are of the opinion that cockle is buckwheat in a wild state, but such is not the fact. Its botanical name is *Caryophyllæ*. It is known to the French as *Coquelicot*. There are a great many varieties of cockle, but the one that does the most harm to millers, and the one which is the hardest to get rid of, belongs to a variety called *Lychnis Gilhago*. It grows like all ill weeds, apace, and it has not a redeeming virtue in the world, as when mixed up in the flour it has a very bad effect on the human system, acting somewhat similar to the weevil, which latter has the effect of cantharides, a poison, so that it is highly important from a sanitary point of view to get rid of it, it being very poisonous, in itself. From a commercial view it destroys the color of the flour, and from a moral view it does not belong to the wheat and flour, and should not be mixed with them if there is any mode of extracting it, as it becomes the worst kind of an adulterant. There were several methods resorted to in Europe, its native country, to remove the cockle. Belts of flannel were used, the spines catching in the fuzz. Another method was to run the wheat down a cone; the cockle being round and light bounded off on a gallop and jumped across the edge, while the wheat slid down into the receptacle at the edge. Rolls of hard and soft rubber were tried, the cockle sticking to them while the wheat dropped down. The rollers were then cleaned off by a scraper. Cork was also tried instead of rubber, but gave no better result. Cockle is a very vigorous weed and branches out generously. It is also very prolific in seed bearing, and brings forth plants after its kind with the utmost regularity. It is proof against blight, or any of the diseases which wheat is heir to. Weevil and other insects give it a wide berth, as it is not considered a healthy food for them. It gives a nice blossom, and the stem sometimes reaches the altitude of a full grown man. The seeds grow in pods and are of a very peculiar shape, owing to which it is a most difficult thing to extract them from the wheat. This is part of the nature of cockle. Cockle stands in the same category in the vegetable kingdom that the mule does in the animal. Josh Billings says that a mule is half horse and half donkey, and then comes to a full stop, nature finding out its mistake. Cockle is half buckwheat and then comes to a halt. It has not a virtue to recommend it, and its dark prickly spines, if allowed to get into the flour, will darken and damage it. It is hard to be got rid of, and every method tried proved ineffectual until inventive ingenuity took the matter in hand and produced a mechanical contrivance that completely removes it. The principle on which these machines depend is the difference in size and shape between the cockle and wheat. Cylinders are constructed of sheet zinc, having indentations in their inner surfaces which are large enough to accommodate the cockle, but too small to hold the wheat, and thus the separations take place. Only the ends of the kernels of wheat stick into the indentations, and the grains consequently fall out before they reach the catch-board, and slide back to the bottom.

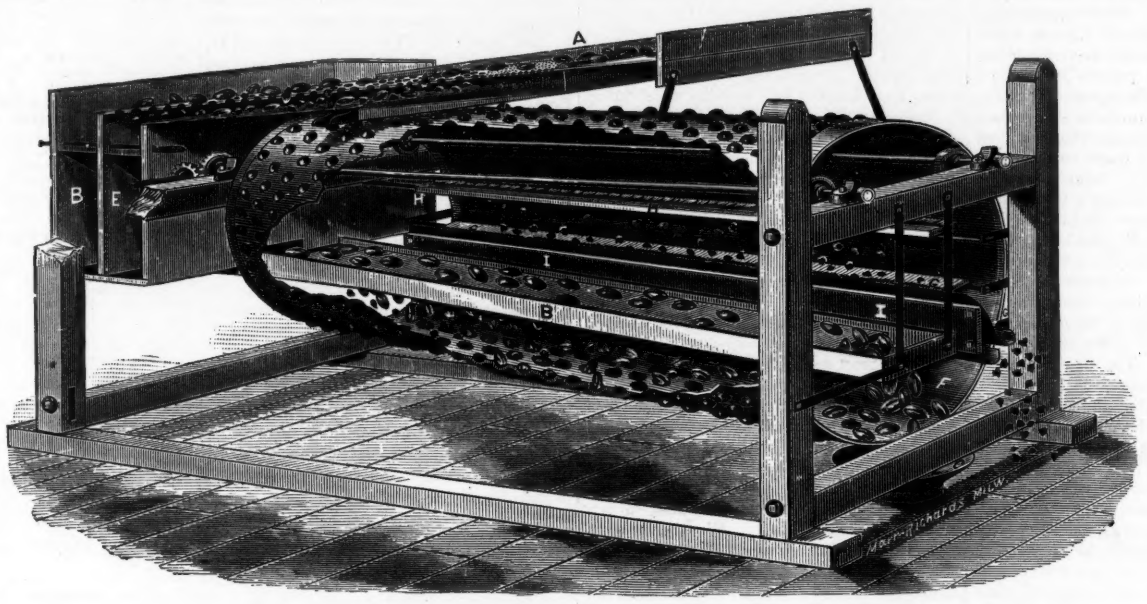
The cut on this page illustrates the interior of the machine and the process of separation.

The grain falls on sieve A, the large grain passing over the tail into division B, thence along spout B, and discharges at the end of the cylinder into hopper C. The smaller grain and cockle fall through sieve A, pass through division E, entering the indented cylinder F at rear end, the cockle fitting into the indentations, and thus, by the revolving of the cylinder, are carried up past the catch-board, fall on the same and roll into the spout, from there, by the shaking motion of the same, being discharged as cut shows. Only the ends of the kernels of wheat are able to stick into the indentation, as shown below:

They consequently fall out before reaching the catch-board, slide back to the bottom, and at the same time are impelled by the motion and inclined position of cylinder toward the hopper C, where they mix with the large wheat from tail of sieve A, or can be kept separate if desirable, thus making two grades of wheat.

The machines manufactured by the Cockle Separator Mfg. Co. give general satisfaction, and are specially adapted for separating other small grains as well as cockle. They have also an oat separator attached that removes oats and other elongated grains in the best possible manner, leaving the wheat completely free from all foreign substances. An illustrated catalogue will be furnished by the Cockle Separator Mfg. Co., Milwaukee, Wis., that will give all information necessary.

Goldsmith & Winter's cracker factory at Dallas, Tex., was recently burned. Loss, $30,000; insurance, $20,000.



Mixing Flours From Different Kinds of Wheat.

BY TRANSATLANTIC.

The miller should be always careful to see that the flour made in his mill is of a standard quality. This always gives the buyer confidence; so that he buys more freely, and the flour can always command a pretty high price.

In sections where the wheats are bought from all parts of the country, it will be very difficult to get two lots of wheat alike, and this is one of the things that a miller must make himself acquainted with, because an unskillful observer might see no difference. The proper way would be to treat each kind of wheat separately, both in cleaning and reducing it to flour. It is always better to mix flours than wheats, and this can be done by means of a small conveyor, but it should, above all things, be remembered that different kinds of wheat should be treated differently in the cleaning as some wheats require, and are able to bear a greater amount of cleaning than others, hard and brittle wheats not being able to stand as much scouring as a tough kind.

In mixing flours, there should be opposite qualities of strength and whiteness, in such proportions as may be necessary for the grade of flour intended to be made, but strength should always be regarded and no doubt should ever be allowed to exist in regard to it. The miller should always have in his possession some instrument or method for ascertaining the quality of the gluten in wheat, because in this lies the test of strength. The aleurometer is one means, and perhaps the best we know of at present, but it is entirely too slow a process to come into general use. If millers were able to ascertain the amount and quality of gluten in a sample of wheat before purchasing, it would be a very great advantage, but the methods now in use are both tedious and inaccurate. Any cheap invention that would be able to quickly ascertain the quantity and quality of the gluten in either a given sample of wheat or flour would be a great benefit to millers. Wheat that is deficient in gluten is naturally deficient in bread making qualities, and, as if conscious of its own infirmities, will not rise. No matter how white and beautiful the flour may appear, if it lacks in gluten, it is only fit to mix with a stronger flour to give it color. The demand at present is for varieties of wheat that are strong in assimilative nitrogenous substances. The interest of the farmer seems to be in the preference for varieties of wheat less rich in gluten and other nitrogenous substances, because wheat without them exhausts the soil less, and the difference in price does not often compensate for the cost in production. The successful production of any variety of wheat, whether soft or hard, requires, so far as the size is concerned, three or four essential things, among which are a certain amount of nitrogen and phosphoric acid, and their combination with lime and magnesia. Some soils have them in abundance for a few crops, but after that the supply becomes exhausted, and it shows it in the diminished crops. This has driven the wheat belt beyond the center of population, and has happened all over the country. Even the varieties of wheat change, and wheats of the same name will present different characteristics in different states. For instance, Clawson wheat in northern New York gives very good results, while the same wheat in other states is complained of by the miller as being deficient in bread making qualities, and the Fultz, which is a modification of the Clawson wheat, is also different in different localities, so that wheats are so affected by climate and soil that the variety that will make good flour in one locality will not do well in another. Farmers should use only the best seed which should be kept constantly renewed. It is not a good thing to mix wheats before granulation, but where a miller finds it necessary to do it he should insure throughout a similarity of condition, dryness and friability, that the hard wheats may not be ground too high nor the soft wheats too low. Similarity of condition is easily enough attained by allowing the mixture to lie together for some time before being reduced to flour. When hard and soft wheats are to be mixed, it is always better to wet the soft wheats before mixing, and then let the mixture lie sufficiently long to allow the dry wheat to absorb the moisture from the damp wheats. The best way to mix wheats is to classify them, and keep them in bins with graduated outlets that can regulate the flow through a conveyor which conveys them to a mixer, so that strict accuracy can be secured in the amount to be delivered. It seems to me that the milling papers do not pay enough attention to wheats and their varieties, without consigning the subject to the agricultural papers; as if the interests of the farmer and miller were identical, which they are not. It is not recommended by any means to mix wheats before grinding. It is always better to mix the flours of different varieties so as to get the requisite grade of flour for the purpose desired.

Best Time to Harvest Grain.

The crowning act of any vegetable is to bring forth fruit. When in the growth of a plant there is presented the maximum amount of good qualities, that period should mark the commencement of its harvest, and when wheat and others cereals attain this point, the circulation of their sap ceases, their power of assimilating mineral matter is destroyed, and a change from green to yellow takes place, showing that they cannot further increase in weight. This is known as the maturity period of the grain, and is the proper time for cutting. When the green color of the straw just below the ears changes to yellow, the grain cannot afterwards be more fully developed, whatever may be its of stage ripeness. Every person acquainted with wheat advocates early cutting. Within three weeks of being fully ripe, the straw begins to diminish in weight, and the longer it remains uncut after that time the lighter it becomes, and the less nourishing if designed for cattle food. On the other hand, the ear which was sweet and milky a month previous to being ripe, gradually consolidates, the sugar changing into starch while the milk thickens into the gluten and albumen of the flour. If cut at this time, when the wheat contains the largest proportion of starch and gluten, it will produce the most fine flour, the least bran, and the greatest weight per bushel, as at this period the grain has a thin skin and hence little bran, as this is the last thing to be perfected, and the growth of the seed for several days before its perfect development is directed solely towards its covering. Since this is the least valuable part of the grain, its increase is undesirable, and when in excess it becomes of less value to the miller. Wheat passes the period of perfection from ten to fourteen days before its full ripening, and has begun to lose its value several days before its complete maturity. It is considered safe to cut the grain the moment the stem changes in color and when the grain, however soft, gives out no longer a milky juice under pressure. One exception only exists as to early cutting, and that applies to such as is intended for seed; it is then desirable to have the bran perfect to protect the germ.

Mr. F. W. Stock, Hillsdale, Mich., is building, adjoining his flour mill, at that place, a 40,000 bushel elevator. This elevator is noted for the small amount of machinery used in handling the grain, one elevator and one conveyor doing all the work. The Link Belt Machinery Co. furnished the machinery, and the plans were drawn by W. D. Rinehart, with the latter company.

Neil O'Brien, a clerk, has been convicted and sentenced at Chicago to the penitentiary for eighteen months for the embezzlement of $2,500 from the "Metropolitan Exchange," one of Chicago's bucket shops.

American Trade Journals and Newspapers Abroad.

REPORT BY CONSUL TANNER, OF VERVIERS AND LIEGE.

To review the evidences of American energy and enterprise in my consular district, and the fruits accruing therefrom, is one of the most pleasing duties I owe to the department of state. In doing this it is but right and proper that mention should be made of American newspapers and journals that are received at this consulate, and have a circulation in my consular district.

Hazelitt says: "No man ever does as much as he can do at anything." If this be accepted as true, it is so to a less extent when applied to these publications than to any other branch of our industry known to me; as by far more intelligent activity is shown by them than from all other quarters (so far as my consular district is concerned) combined. The most of these journals are consecrated exclusively to our commerce and industries, as the titles borne by them prove. As heralds of our business men, and the benefit they are to our commerce and national prosperity, their influence would be difficult to overestimate. I seriously doubt if our commerce would have taken those astounding strides which have placed it in the front rank with older nations had it not been *chaperoned* by these able and inimitable journals.

The following publications at their own quoted value, are received monthly at this consulate:

	Single copy.
Scientific American	$ 50
American Monthly Commercial Review, &c	30
American Mail and Export Journal	25
The Export Journal	20
Dry Goods Bulletin	15
American Manufacturer and Iron World	20
NORTHWESTERN MILLER	20
All others	40
Making a total of gratuitous publications	2 20

As these journals are thus sent, it is to be presumed that they are sent in the same manner to all other legations, consulates, vice-consulates, and consular agencies. If this be true, there are: Legations, 34; consulates, 313; vice-consulates, 313; consular agencies, 400; total, 1,060. This would make a total free distribution of American periodicals to government employes, not including postage (no mean item), enveloping, and cost of labor in preparing them for the post, of a sum not far short of $3,000 per month or nearly $40,000 per annum, These publications, collectively, have something like 7,000 advertisements, representing the interests of more than twice that number of persons engaged in business and a capital of many millions of dollars.

Many of the articles advertised are represented with much skill, if not art, by engravings that attract the eye and recommend the article to purchasers.

While the person inserting an advertisement in a journal unquestionably seeks his own benefit, this benefit has a far wider range; its ramifications go to the laborer that produced the article advertised, to the printer that sets up the advertisement, the merchant and his clerk, to those who handle it, to the railroad or ship that transports it, and to the commerce of the nation. As a stimulus for trade no better method has to the present time been discovered. It is a simple proposition to show the number of persons benefited by the sale of an article caused by an advertisement, and to show the relations it bears to our commerce, industry, and national prosperity.

I have on file at this consulate, collected in a six years' residence here, nearly two hundred letters from different places adjacent to and in Liege and Verviers, making inquiry about dealers in numerous articles in the United States, and asking for addresses. Had it not been for these journals I do not know how I would have ever answered such letters. If had failed to do so the consequences are palpable; some American industry would have doubtless suffered by my failure. These inquiries I found so frequent that, in order to facilitate matters, I keep a register of all advertisements in the journals sent to this consulate in alphabetical order, and when a demand of this character is made on me I do not return the reply, "the names of such dealers are not known to me," but simply turn to the register and the task is easy. I have been able in this way to answer every inquiry either in writing or otherwise, save one, and that of a furniture manufacturer in the United States.

In point of merit in editing, style of printing, and general appointment too much praise cannot be bestowed upon the publications. They stand unique and unequaled anywhere in the world. There is no possible agency that can take their places in giving others an insight into our national characteristics, civilization, and progress, and that can go further in generating that respect that it is the object of all government to promote, and so agreeable for Americans to find existing when they visit foreign countries.

I will not attempt to constitute myself spokesman for the diplomatic and consular corps, but I think I am but speaking the sentiments of every recipient of these journals when I say that apart from their actual usefulness, they take away half of that monotony that usually weighs so heavily on those who live out of their native country. They give us that clear and intelligent insight into the complexities of our commerce and industry that goes so far to increase our usefulness and make us more efficient officers. And yet as much as I appreciate these publications, and as useful and acceptable as they are to me, I could not afford out of my small compensation the tax that a paid subscription would impose.

In the line of my duty to the department of state, perhaps I am of some indirect benefit to these journals, as they make frequent use in their columns of information furnished by me to the department for the benefit of their subscribers.

The reports of our diplomatic and consular corps are in this way irrigating sources to them, but this is an incumbent duty, even if these journals had no existence; therefore they are under no obligations to me that I can perceive, while my dependence has already been made apparent.

The department spends thousands of dollars per annum to publish the reports of our consuls. The importance of their publication is proven in the fact that England and all other European governments are setting to work to imitate us in this particular. These journals aid the government in this undertaking, and as their prime object is the advancement of our commerce, national industries, and general prosperity, and as there is clearly a balance from some quarter, to be readjusted in favor of these journals, it seems to me, even admitting that matters of this kind find their own level, and the publishers of these journals know what they are doing in sending them so liberally, it is but just and right that the government of the United States should reimburse the publishers, thus aiding them in the good work they are engaged in, and relieving them of the enormous annual loss for which otherwise I can see no adequate return. It is difficult for me to perceive how objection could be found to this proposition from any quarter. These publications are purely non-political, and, as already stated, devoted entirely to our commerce and industries, and anything that goes to their advancement never fails to occupy a conspicuous place in their columns.

If my premises are conceded that these journals tend to promote the national prosperity, I am sure that the nation cannot but be willing to pay for such benefits, and that it does not wish its employes to be the recipients of favors on which their unselfishness in some measure rests without some return to those conferring such favors.

Europeans read advertisements much more than Americans; it is in this way they manage to edify themselves so long with their usually handkerchief-sized papers, which the average American would dispose of in a few minutes.

One may possess the best education that instruction and research can promote and brain retain; yet what would such knowledge be worth nowadays if a man could not discuss intelligently the stirring events of the day as reported in our newspapers? Newspaper education enables a great many with barely education enough but to read to not only hold their own with the college graduates, who have in a measure missed such instruction, but to outstrip them and secure better positions, and to appear to equal advantage in society.

I believe, with the same degree of effort on the part of other American journals, that a large circulation in Europe might be effected, and such journals may be assured of my most active co-operation in any effort they may make to this end. GEO. C. TANNER, Consul.

UNITED STATES CONSULATE.
Liege and Verviers.

A. B. TAYLOR,
Wholesale Grain Dealer.
Milling orders for round or car lots of hard or soft Spring Wheat promptly filled. Careful attention given to consignments Security Bank Building, MINNEAPOLIS, MINN.

J. J. BLACKMAN & CO.,
Commission Merchants.
FLOUR AND MILL FEED EXCLUSIVELY.
37 Water Street, New York.
J. J. BLACKMAN, J. S. BLACKMAN.

M. BERNATZ,
Flour, Grain and Feed
COMMISSION MERCHANT.
Strong Minnesota Bakers' flour a specialty. Liberal advances made on consignments. Correspondence solicited. Reference—R. Patrick & Co., Bankers, Pittsburgh, Pa.
339 Liberty Street, PITTSBURGH, PA.

EXPORT FLOUR TRADE!
Chas. J. HELLIWELL & CO.
51, Chamber of Commerce Building,
MILWAUKEE, - - WISCONSIN,
(ESTABLISHED 1860.)
Mr. C. J. Helliwell, after a visit of several months to this country, has now returned to Liverpool, England, still better fitted than formerly to serve American Millers. The firm at Milwaukee will be pleased to receive samples and offers from millers, and to furnish any information in their power.

F. W. COMMONS & CO.,
Grain Commission Merchants
AND SHIPPERS OF MILL FEED.
Consignments and orders will receive careful attention. Correspondence invited. **331 Hennepin Ave., MINNEAPOLIS, MINN.**

A BARGAIN!
The following machinery will be sold at a bargain: One 25-inch right hand turbine water wheel; 1 30-inch right hand turbine water wheel; 1 30-inch left hand turbine water wheel; 1 36-inch right hand turbine water wheel; 1 40-inch left hand turbine water wheel; 3 No. 5 Smith purifiers. This machinery is in excellent order and will be sold at a sacrifice. Address,
PRAY MFG. CO.,
Minneapolis, Minn.

C. A. SELEY.
CONSULTING ENGINEER.
ROOM 16, DRAKE BLOCK, ST. PAUL, MINNESOTA.
I am prepared to contract for engineering work as follows: Furnish and set up power plants, complete or in part, set up machinery, pumps, water works, etc., and take charge of repairs.
Stationary, locomotive and marine engines indicated and adjusted for highest economy and work. Will conduct fuel and engine tests; design engines and special machinery. General draughting and engineering.
If you are burning too much fuel; if you wish to increase your power without great expense; if you wish power measured for renting or experiments; in short, any item of engineering work will be promptly attended to. Work done under guarantee when desired. Correspondence solicited.

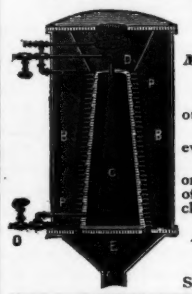
CHEAPEST STEAM PUMP IN THE WORLD!
IN EIGHT SIZES
THE UNIQUE
Boiler Feeder
STRICTLY FIRST CLASS IN EVERY RESPECT.
SEND FOR NEW & REDUCED PRICE LIST. FREE ON APPLICATION
MANUFACTURED BY THE MILLER COMPANY. CANTON, OHIO.
Satisfaction Guaranteed or No Pay!

HOW TO KEEP BOILERS CLEAN
FREE BOOK Jas F Hotchkiss 84 John St. N.Y.

Oak Leather Belting
OF SUPERIOR QUALITY,
HARDWARE,
Mill Supplies
MILLER BROTHERS,
304 & 306 Hennepin, Ave. Minneapolis, Minn.

G. O. FOSS. J. C. PATTERSON.
FOSS & PATTERSON,
Civil and Hydraulic Engineers
Plans for dams and improvement of water power.
Room 33, Boston Block,
Cor. Hennepin Ave. and Third St., MINNEAPOLIS.

J. D. EDGE,
Millwright and Draughtsman,
Dealer in Millfurnishings, Etc.
Estimates cheerfully given on building new mills and repairing old ones. **Minneapolis, Minn.**

WELCH'S WHEAT HEATER!
WITH STEAMING ATTACHMENT.

FIRST PREMIUM
—AT—
Millers' International Exhibition
Its superiority over a others fully established.
Heats every grain of wheat evenly and thoroughly.
We guarantee satisfaction or no sale, and invite a trial of 30 days to prove our claims.
A. B. BOWMAN,
800 North 2nd St.
ST. LOUIS, MO., U. S. A.

SAVE BOILER AND FUEL!
LYE & ZIMERLE'S
IMPROVED
Anti Incrustation Compound!
For Steam Boilers is warranted to do all we claim for it—if used as per directions—viz: Stop formation of scales and gradually bring out the old; **prevent foaming** and gritty matter being carried into the cylinder to cause its cutting. It is second to none.
ALL STEAM USERS NEED IT.
Price reduced to 50 cents per gallon in barrels, half barrels and quarter barrels. Correspondence solicited and references furnished. Please give diameter and length of boiler, well or river water and kind of mineral as r early as possible. Address,
LYE & ZIMERLE, Delphos, Ohio.

ENGRAVING ON WOOD
VIEWS OF MILLS, MACHINERY, ETC.
IN THE BEST STYLE
AT
REASONABLE PRICES
THE NORTHWESTERN MILLER
MINNEAPOLIS, MINN.

BURNHAM'S
Standard Turbine
Water Wheel.
Over 2,000 sold the past eight years. New illustrated and descriptive pamphlet sent free
BURNHAM BROTHERS,
YORK, PA.

ST. LOUIS SIFTINGS.

[SPECIAL CORRESPONDENCE.]

Milling, from a productive point of view, shows a fair improvement, but in general trade there is no change. The flour market is unsettled and lower, and the demand very light, being almost exclusively from local and order buyers, and, as heretofore, for the better grades only. Values are off about 5 cts. on all grades above XXX. Grades below XXX have declined 20 to 25 cts. during the week, and even with these concessions sales have to be forced. The movement of flour is small, the shipments for the week being only 31,000 barrels. With the increased receipts of new wheat, the mills are starting up, but if prices would drop a few cents, a more marked activity would be noticed. The output of flour, however, has increased considerably, the following having been the daily production for the past week:

	Bbls.
Victoria	800
Park	800
Eagle	800
Kehlor Milling Co.	600
Camp Springs	500
Sessinghaus Bros.	500
Saxony	500
Plant's	500
United States	500
Hazel	400
Total production per day	5,900

The Union steam mill, which started up Thursday, making 300 barrels per day, swelled the output to over 6,000 barrels. Next week the production will probably be increased by the starting of the Planet (2,000 barrels), Anchor (800 barrels) and City (200 barrels) mills. The Laclede mill may also get under way, adding 600 barrels more. The New Atlantic, Geo. Bain's mill, will start up as soon as wheat takes a drop or flour makes an ascension. George does not think it worth while to run with the present state of things.

Though wheat receipts were 44,000 bus. larger than last week's, the arrivals of wheat have been singularly small for the season. The overflow of the low lying lands down the river, from whence our best and earliest receipts are usually drawn, has naturally retarded the shipping movements from that source. Wheat is generally going into stack now, where in more favorable seasons it has come to market direct from the shock. Crops are turning out much better than expected, and the yield, as a rule, although small, is good. Notwithstanding the unfavorable state of the markets, as well as the unpromising reports from abroad, a very good feeling prevails both in our flour and wheat corners. The inspection of wheat out of our elevators this week was 177,353 bus.; withdrawn from elevators for home consumption, 90,000 bus.

⁂

The Empire mill will start up on Monday.

M. Birkholz, of Milwaukee, was in the city Thursday.

J. H. Hauser, of Raymond, Ill., visited the flour corner Wednesday.

The Union steam mill started up Wednesday, and is now under full tilt.

The St. Charles mill will start to grind about the middle of next week.

Thos. Koenigsmark, of the Gardner mill Columbia, Ill., spent a few days here this week.

G. Ziebold, of Red Bud, Ill., one of our veteran millers, was in town to-day, greeting old acquaintances.

The old part of the Victoria mill started up last Monday, and the whole mill is now in successful operation.

The water having been pumped out of the cellar of the City mill, it will resume operations next Wednesday.

The excavation for the new mill of H. B. Eggers & Co. is completed, and the foundation walls are commenced.

Louis Weber, late with Kehlor Bros., has severed his connection with that firm and is now engaged in the brokerage business.

J. C. Reither, of Nashville, Ill., and C. J. Weinhold, of Estel & Weinhold, Wittenburg, Mo., were in town during the past week.

The Phoenix mill belonging to the Atlantic Milling Co., is undergoing some repairs, the foundation of the engine being renewed. Several dust catchers are also being added.

During the high wind on Friday about thirty feet of the corrugated iron roof on the flour warehouse of the Missouri Pacific railroad was blown off and narrowly escaped hitting the watchman in charge.

Wm. Enger, a millwright of Minneapolis employed on the Planet mill at Litchfield, Ill., met with a serious and it is feared a fatal accident Friday. It seems that, wishing to ascend from the third to the fourth floor, he tried to jump on the elevator which had just passed on its upward trip, but, miscalculating the distance, he missed it, and fell head-long to the cellar below, a distance of some 75 feet, striking on his head. He was picked up unconscious, and borne to the upper floor, and a physician summoned, but, up to a late hour, he had not revived, and his recovery is doubtful.

CARRERAS.

St. Louis, July 16.

TRADE TALK.

This column is open to all regular subscribers to the Northwestern Miller, and all questions will be answered by competent practical millers at the publisher's expense. Unless signed by the editor, all matter published is given as the expression of individual opinion, for which the Northwestern Miller assumes no responsibility. Subscribers asking questions or criticising matter appearing here or elsewhere in the Northwestern Miller, may use initials or such signatures as they may select, but every letter must be accompanied by the full name of the writer, as only bona fide communications will be printed. The fullest criticism of anything and everything appearing in the paper, in this department or elsewhere, is invited.

P. H. Kenny, Nashville, Mich. "I think it my duty to honestly and truthfully expose, in your widely circulated paper, one of the few impositions that are perpetrated on inexperienced millers and mill proprietors. Last fall there was a man who came around this locality selling a macnine, which he called a feeder and separator combined, designed to rest upon the mill curb to supply the place of a hopper, shoe and dansell, and which he warranted to cut the legs off grown wheat. This same manufacturer, as he calls himself, after prowling around some time seeking whom he might devour, lit on a medical gentleman by the name of Dr. W. H. Young and deceived him. I knew nothing of the matter until the machine was sent to the Scipio mill, where I then worked, but on seeing it and subjecting it to close scrutiny, I condemned it at once, telling my employer I did not want it or any other useless piece of cast iron weighing 80 pounds. The main part of the machine was separable into halves, being bolted together. It had three legs and stood erect in the shape of a black bull frog. In the interior were a conduit or pipe and one fan that ran by the dansell of the stone. On top of the dansell, is a useless piece of casting weighing 3 pounds and washed with brass, evidently more designed for ornament than any use. After it had been forced on me and I had given it a fair trial, I told the manufacturer I did not want it, as it had no earthly value as a scourer or cleaner, and would not separate wheat except under full drawn blast, and then would throw out the whole berry. Under one-fourth, one-half or three-fourths blast, it made no separation for me, and when I opened it to full blast the grain all came through untouched. I told the maker and my employer, that so long as I used only half blast in a Barnard smutter and separator I did not want it. Commencing the milling trade in 1853, I have had 30 years, constant experience and have seen a good many patent milling humbugs, both in the British Isles and this country. Still I must say that this was the greatest cast iron humbug I have ever seen in all the 30 years. I visited another mill this spring where the proprietor had also been downed by this manufacturer. My present proprietor had one when I came to him, but ran it only a week, when I laid it aside as useless. I asked the maker to take it back and pay my employer half its cost which would be $20.00, telling him it was no worse for wear having been used but a short time. This he refused to do, and I honestly believe he would not have taken it back two days after selling had it been offered free, and he only to pay the freight on it home. I have no object in speaking thus of the machine save for the benefit of millers and mill owners. The manufacturer of this cast iron bull frog is John Hutchinson, of Jackson, Mich. He also advertises a corn sheller, which I know nothing about as I have never used it and do not want to, thinking that a man who makes one poor machine is very likely to make two. There is only one machine of that kind which is good for anything, and that is a scourer, separator and middlings feeder combined, with a round glass case about the jacket. This machine which I have used and can highly recommend, is made by D. L. Braucher, of Lincoln, Ill. There is no man who appreciates improvement in machinery more than I, and I neither condemn without a trial, or decide like some millers at first sight, and judging by paint, stripe and ornament."

⁂

P. H. Pike, Wisconsin. "I would like to know the number of meshes in one of the standard brands of bolting cloth; also the meshes in grits gauze, and how those correspond with the meshes in silk bolting cloth as also with wire cloth. This has puzzled me often and I have no doubt there are many millers as well as myself to whom the answer will be interesting." In our popular brand of cloth, the meshes of each number from 0000 to 17 are given as follows:

No.	Mesh.	No.	Mesh.
0000	18	8	84
000	22	9	94
00	28	10	106
0	38	11	114
1	48	12	124
2	52	13	130
3	56	14	139
4	60	15	148
5	64	16	156
6	72	17	163
7	80		

Mesh.	GRITS GAUZE.	No.
16	Corresponding with silk cloth	0000
18		
20	Corresponding with silk cloth	000
22		
24		
26	Corresponding with silk cloth	00
28		
30		
32		
34	Corresponding with silk cloth	0
36		
38		
40		
42		
44	Corresponding with silk cloth	1
46		
48		
50	Corresponding with silk cloth	2
52		
54	Corresponding with silk cloth	3
56		
58	Corresponding with silk cloth	4
60	Corresponding with silk cloth	5
64	Corresponding with silk cloth	6

The following table exhibits the stocks of flour, wheat, and corn in London on the dates named:

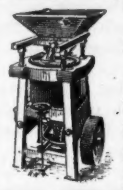
Articles.	July 1, 1883.	July 1, 1882.
Flour, bbls.	575,000@600,000	
Wheat, qrs.	460,000@480,000	320,000@340,000
Corn, qrs.	25,000@ 50,000	50,000@ 60,000

The following shows the visible grain in this country and Canada on the dates named:

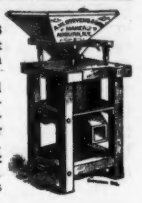
Articles.	June 30, 1883.	July 7, 1883.	July 8, 1882.
Wheat, bus.	19,418,915	18,598,493	9,624,412
Corn, bus.	13,065,984	12,336,529	6,388,350
Oats, bus.	4,005,007	3,709,137	1,675,628
Rye, bus.	1,837,911	1,712,609	677,810
Barley, bus.	486,922	398,299	72,943

CHICAGO SCALE CO.
2 TON WAGON SCALE, $40. 3 TON, $50.
4 Ton $60, Beam Box Included.
240 lb. FARMER'S SCALE, $5.
The "Little Detective," ¼ oz. to 25 lb. $3.
300 OTHER SIZES. Reduced PRICE LIST FREE.
FORGES, TOOLS, &c.
BEST FORGE MADE FOR LIGHT WORK, $10.
40 lb. Anvil and Kit of Tools, $10.
Farmers save time and money doing odd jobs.
Blowers, Anvils, Vices & Other Articles AT LOWEST PRICES, WHOLESALE & RETAIL.

STEVENS' FRENCH BUHR
Feed Mills



The cheapest and best mills in the world. Prices, $80 and upwards, subject to cash discount. Send for circulars to A. W. Stevens & Son, Auburn, N. Y. Mention this paper.



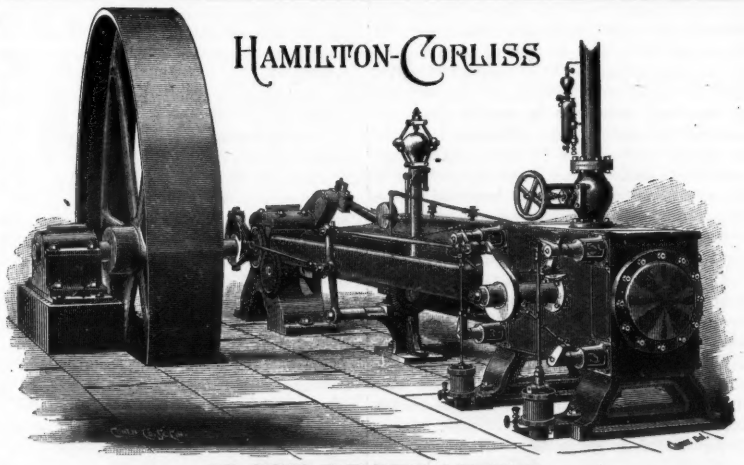
JOHN C. HIGGINS,
Manufacturer and dresser of
MILL PICKS
168 W. KINZIE STREET
CHICAGO.

Picks will be sent on 30 or 60 days' trial, to any responsible miller in the United States or Canada, and if not superior in every respect to any other pick made in this or any other country, there will be no charge, and I will pay all express charges to and from Chicago. All my picks are made of a special steel, which is *manufactured expressly for me* at Sheffield, England. My customers can thus be assured of a good article, and share with me the profits of direct importation. References furnished from every state and territory in the United States and Canada. Send for circular and price list.

SPECIAL NOTICE.

Our agency at Minneapolis having been discontinued, all orders should be sent to Chicago direct, where a large and complete stock is kept, and all orders will be promptly filled.

LINK BELT MACHINERY CO., CHICAGO, ILL.



CLOSE REGULATION
—AND—
BEST ATTAINABLE ECONOMY OF FUEL AND STEAM
Highest Efficiency and Superior Construction. Made in all Sizes, from 50 to 300 H. P.
THE HOOVEN, OWENS & RENTSCHLER CO., Hamilton, O., U. S. A.
Builders of all Styles of Engines, Boilers, Saw Mills, Etc.
Correspondence Solicited. BRANCH OFFICE: No. 811 N. Second St., ST. LOUIS, MO.

Wire Cloths of Every Description

CLINTON WIRE CLOTH CO.

FOR MILLING PURPOSES.

Write to Chicago Office, 138 Lake Street, or to C. S. Leeds, Minneapolis.

The Liability of Dust Explosions in Mills

IS DONE AWAY WITH BY USING THE

PRINZ PAT. IMPROVED DUST COLLECTOR

IT IS AN ESTABLISHED SUCCESS.

The Back Draft Cleaning Mechanism, the only perfect device for keeping the cloth clean, exclusively used under the Prinz Patents. **Beware of Infringements.**

Prinz Patents,
Nos.
272,473
272,474

Prinz Pat. Improved Dust Catcher.

Prinz Pat. Improved Dust Collector with Fan Attachment.

CONSOLIDATED
Licensees Patents,
Nos.
63,325
125,518
149,434
171,973
207,585
211,033
228,023
231,376
235,197
239,755
248,984
250,813
251,120
251,121
258,875
258,876
258,878
259,872
259,873

One Thousand Machines in Successful Operation. Machines in steady operation for over two years. Selling at the rate of 200 a month. **FULLY GUARANTEED.** *Manufactured exclusively under the* **PRINZ PATENTS.** *Also licensed under all patents now or hereafter owned and controlled by the combined licensees, Geo. T. Smith Middlings Purifier Co. of Jackson, Mich., Kirk & Fender, Minneapolis, Minn., and Sam'l L. Bean of Washington, D. C.* **See Special Notice.** *License under all patents furnished purchasers. Send for circulars and testimonials, All correspondence promptly answered. You will save time, money and labor by using this machine.* **Every Miller Should Have It.** *Remember it is the* **BEST.**

MILWAUKEE DUST COLLECTOR MFG. CO., Milwaukee, Wisconsin, U. S. A.

FOR A CHANCE

We Here Show You a Cut of Our

UPPER RUNNER PORTABLE MILLS,

which are also made double geared. In addition to these we make the boss line of Under-Runners, and if you wish to see cuts, descriptions, and prices of all, send for our X Price and Pattern List, which also shows up our fine line of

PULLEYS, SHAFTING, COUPLINGS, &C.,

And General Mill Machinery.

WILLIAMS & ORTON MANFG. CO.,

P. O. BOX 148. **STERLING, ILL.** P. O. BOX, 148.

If you wish, we will send you our Illustrated Treatise on Wire Rope Transmission, which is a rapidly developing method of carrying power long distances.

EDWARD KENNEDY

Calls the attention of mill owners and mill men generally to his unrivalled mode of manufacturing and dressing

MILL PICKS

After long experience in the business *Can guarantee perfect satisfaction.* A large assortment of picks on hand. All orders promptly attended to.

510 2nd St. South, MINNEAPOLIS, MINN.

Magnetic Grain Separators.

Absolutely perpetual, cheap, and sold on their merits after thirty days' trial. Awarded first prize at Cincinnati Exhibition by a committee of experts. Send for circulars.

WESTERN MAGNET CO., Delavan, Ill

MFG. AND TRADE.

L. M. Marshall, Perry, Mich., has put in an Allis-Gray roller mill.

Odell rolls have recently been ordered by M. C. Stoner & Co., Chambersburg, Pa.

Odell rolls are to be placed in the mill of Nathan D. Egbert, Charlotte, Mich.

Armstrong & Sons, Fayette, Mo., have lately started up their mill on the Case system.

Messrs. Wilson & Co., Rosemond, Ill., lately purchased an Allis-Gray belt roller mill.

Allen, Luninger & Co., Brighton, Ia., has put in a double purifier from the Case Mfg. Co.

The Northwestern Mill Co., Milwaukee, Wis., recently put in an Allis-Gray roller mill.

The Stilwell & Bierce Mfg. Co. have orders for 6 pairs of Odell rolls from the Gratiot Mfg. Co.

E. P. Allis & Co. recently sold Schœllkopf & Matthews, Buffalo, N. Y., an Allis-Gray set of rolls.

The Stilwell & Bierce Mfg. Co. have orders for the Odell rolls from the Slater Mill Co., Blanchester, O.

The Stilwell & Bierce Mfg. Co. have an order from Moehle Bros., Arrow Rock, Mo., for an 8-roll mill.

J. Pitt Felt, Emporium, Pa., will start up his mill in a short time on the Case system of gradual reduction.

The Case Mfg. Co. have an additional order for break machines from Thos. Bradford & Co., Cincinnati, O.

The City Mills & Elevator Co., Sioux City, Ia., are running a Case purifier furnished by the Case Mfg. Co.

H. T. Pendleton, Wentzville, Mo., has his mill now in operation on the Case system of gradual reduction.

I. H. Jones, Jamesport, Mo., will start up his mill in a short time on the Case system of gradual reduction.

M. M. Snider, Cambridge, Ia., is running a line of machines furnished by the Case Mfg. Co., Columbus, O.

G. V. Hecker & Co., New York city, recently added another Allis-Gray belt roller mill to their machinery.

The Stilwell & Bierce Mfg. Co. have orders for 6 pairs of Odell rolls for the mill of Raban & Moss, St. Wendel, Ind.

The Stilwell & Bierce Mfg. Co. have an order from Loaiza, New York City for one of their lime extracting heaters.

The Higginsville Milling Co., of Missouri, are adding a line of machinery procured from the Great Western Mfg. Co.

H. D. Rush, of Leavenworth, Kas., is putting in additional Stevens roller mills, furnished by the Noye Mfg. Co.

E. P. Allis & Co. have received an order from the Plano Mfg. Co., Plano, Ill., for a 26x48 Reynolds-Corliss engine.

Enos Clark, Arapahoe, Neb., is making extensive additions to his mill, under supervision of the Great Western Mfg. Co.

David Close, of Norton, Kas., has ordered purifier, middlings mill, etc., of the Great Western Mfg. Co., Leavenworth.

Haggerty, Hunter & Co., Peoria, Ill., recently ordered an Allis-Gray belt roller mill for a job they have at Wagnon, Ill.

Rapell & Bailey, Wetmore, Kas., have placed their order for purifiers, shaftings, gearing, etc., with the Great Western Mfg. Co.

Edw. P. Allis & Co., recently sold the La Crosse Brush Electric Light & Power Co., a 14x36 Reynolds-Corliss engine complete.

D. L. Guyer, of Pomeroy, O., has lodged an order with the Noye Mfg. Co., for a double Stevens roller mill for bran and tailings.

J. & C. Cox, Warren, Ill., have placed an order with the Noye Mfg. Co., for a Rounds sectional roller mill with Stevens corrugation.

Jesse Barfield, of the Link Belt Machinery Co., Chicago, has closed a contract for remodeling the mill of E. Kafader at Worthington, Ind.

Five pairs of Odell rolls purchased of the Stilwell & Bierce Mfg. Co., are to be placed in the mill of Joost & Wintenheimer, Wadesville, Ind.

The Pomeroy Milling Co., Pomeroy, Kan., are adding a line of new machinery, received from the Great Western Mfg. Co., of Leavenworth, Kas.

The Jno. T. Noye Mfg. Co., of Buffalo, N. Y., are about to let the contract for the building of extensive additions to their already large works.

The Case Mfg. Co., Columbus, O., have the order of Jos. Gebhardt & Son, Dayton, O., for a pair of scratch rolls with patent automatic feed.

The Case Mfg. Co., Columbus, O., have lately furnished Taft & Gaisier, Linesville, Pa., with a 4-roller Bismarck mill, with patent automatic feed.

J. & S. Emison, of Vincennes, Ind., are increasing the capacity of their mill by the addition of Stevens rolls, furnished by the Noye Mfg. Co.

Price & Wilkinson, Taylorville, Ill., have ordered a 16x42 Reynolds-Corliss engine complete, of E. P. Allis & Co., to run their flour mill at that place.

The Stilwell & Bierce Mfg. Co. have recent orders for their celebrated lime extracting heaters, from the Great Western Mfg. Co., Leavenworth, Kas.

Messrs. Allis & Co. have sold a 12x36 Reynolds new style engine to the Milwaukee industrial exposition to furnish power for electric light plants, etc.

The Stilwell & Bierce Mfg. Co. are furnishing 6 pairs of Odell rolls for the mill of Monroe Bros., Columbus Grove, O., being built on the Odell system.

The Case Mfg. Co. are furnishing Crisman & Burnell, Denver, Colo., with a double purifier, a Case centrifugal reel, and other machinery for their Star mill.

The Stilwell & Bierce Mfg. Co. have a contract to remodel the mill of W. I. Ballenger & Son, Plain City, O., furnishing Odell rolls and a line of machinery.

Chas. Heuber, of St. Louis, has instructed the Jno. T. Noye Mfg. Co. to ship the Jefferson Mill & Elevator Co., at Mt. Vernon, Ill., three Stevens roller mills.

Smith, Gifford & Co., Nashville, Tenn., recently placed their order with E. P. Allis & Co., for an Allis-Gray belt roller mill for Barrett, Denton & Lynn, Dalton, Ga.

Jas. Pollock & Co., Vincennes, Ind., have directed Jno. Webster to send them a double Stevens roller mill for grinding low grade flour, the Noye Mfg. Co. filling the order.

J. B. Miller & Co., Ashley, O., who are running on the Case system of gradual reduction, write: "We are 700 barrels of flour behind our orders from the town of Scranton, Pa."

A complete line of Odell rolls are to be placed in the mill of Jacob Rankerk, at Bolivar, O. The contract for building the mill was awarded to the Richmond City Mill Works.

Jesse Barfield, of Terre Haute, Ind., has closed a contract for the Link Belt Co., of Chicago, to remodel the steam mill of Cushman Crowder, at Merum, Ind., to the roller system.

The contract for remodeling the mill of Wm. Solover & Co., Moravia, N. Y., has been awarded to the Stilwell & Bierce Mfg. Co., Dayton, O., who furnish 10 pairs of Odell rolls.

Ehrlich Bros., Marion, Kas., have placed an order with the Noye Mfg. Co., of Buffalo, for a Rounds sectional roller mill with Stevens corrugations, and a double mill for bran and germ work.

Edward P. Allis, Milwaukee; Jas. Leffel & Co., Springfield, O., and Agerton, Stephenson & Co., Upper Sandusky, O., have ordered lime extracting heaters from the Stilwell & Bierce Mfg. Co.

The Stilwell & Bierce Mfg. Co. have an order from the North Star Iron Works, Minneapolis, Minn., for a Stilwell heater. They have also shipped one of their heaters to Guaymas, Mexico.

E. P. Allis & Co. recently received an order from the Bass Foundry & Machine Works, Fort Wayne, Ind., for an Allis-Gray belt roller mill for the Darling Mill Co., Tremont Center, Mich.

C. L. Rounds, of Auburn, N. Y., has filed an order with the Noye Mfg. Co., Buffalo, for a Rounds sectional roller mill with Stevens corrugations, and two single mills for bran and low grade grinding.

The Stilwell & Bierce Mfg. Co. are to build the mill of Jas. C. Wilkinson, Lewiston, Ill., capacity 100 barrels. The mill is to be built on the Odell system, and will be furnished with 10 pairs of Odell rolls.

J. S. Bristol, Auburn, N. Y., will place in his mill a Rounds sectional roller mill with Stevens corrugations, and a single mill for low grade and a double roller mill. The Noye Mfg. Co., of Buffalo, have the order.

The Stilwell & Bierce Mfg. Co. have orders from Hefner & Co., Circleville, O.; Wysor, Hains & Co.; Muncie, Ind.; Goble, Throne & Co., East Palestine, O., and Graham & Daugherty, Dayton, O., for Stilwell heaters.

C. Bonnot & Son, Louisville, O., have ordered the Case Mfg. Co. to ship a 4-roller Bismarck mill with patent automatic feed, and a Case centrifugal reel, to Greentown, O., to go in the mill they are remodeling at that place.

Jno. Webster, of Detroit, Mich., has lodged an order with the Jno. T. Noye Mfg. Co., Buffalo, for a Rounds sectional roller mill with Stevens corrugations, and three double mills for the mill of C. W. Rudd at Orion, Mich.

Esser, Ogden & Zimmerman, of Buffalo, N. Y., owners and operators of the Banner mill, are increasing its capacity by putting in 10 pairs of Stevens rolls with recent improvements. The Jno. T. Noye Mfg. Co. have the contract.

Wolf & Hamaker, Allentown, Pa., recently placed orders with E. P. Allis & Co., Milwaukee, Wis., for 10 pairs of the Allis-Gray rolls for Harzel & Sons, Chalfont, Pa.; also for 6 pairs Allis rolls for H. P. Butz & Co., Alburtis, Pa.

Edw. P. Allis & Co., Milwaukee, Wis., recently sold C. Shoe & Son, Appleton City, Mo., three pairs of Allis-Gray rolls, one of their new four-break reduction machines and other machinery necessary to change their mill to the roller system.

J. Hayes, of the firm of J. & J. Hayes, Goulburn, New South Wales, Australia, who has been in this country for the purpose of investigating engines and mill machinery, after visiting all of the principal factories, placed an order with E. P. Allis & Co., of Milwaukee, for an 18x36 Reynolds new style engine, and for Allis-Gray roller mills.

The Case Mfg. Co., Columbus, O., have lately been awarded the contract of Mat. Wolf, of De Graff, O., for a full gradual reduction mill on the Case system, using 12 pairs of Case rolls in connection with their purifiers, centrifugals, scalpers, etc. This mill will come in competition with some of the best roller mills, and the Case Co. are bound it shall be second to none.

Jno. Webster, of Detroit, Mich., reports the general outlook for business quite good. He has recently taken an order from G. W. Kennard, Champaign, Ill., to overhaul his mill to the roller system, and for that purpose has instructed the Noye Mfg. Co., of Buffalo, to ship a Rounds sectional roller mill with Stevens corrugations, and six pairs of line rolls.

Edw. P. Allis & Co., of Milwaukee, have secured the contract to remodel the mill of Price & Wilkinson, at Taylorville, Ill., and are putting in twenty pairs of Allis-Gray rolls together with the machinery necessary to complete the change. The mill will be driven by a 16x42 Reynolds-Corliss engine, and when completed will be capable of doing as good work as any mill in that part of the state.

The "Dux" lubricant, of the Leib Lubricating Co., Buffalo, N. Y., seems to be meeting with the success it deserves. Prof. Rae, electrician of the electric railway in operation at Chicago during the railroad exposition, endorses it, "Dux" being used upon the electric train. Prof. Rae says that he considers it the best, cleanest and coolest running lubricant he has ever used. Strong testimonials have also been received by the Leib Co. from the engineers and electricians of the celebrated Bullock Straight Line engine, Thomson-Houston Electric Light Co., Fuller Co., and others, showing the superior merits of the Plus engine oil in practical work.

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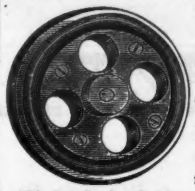

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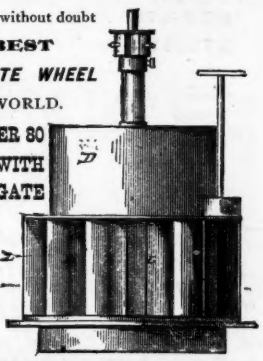

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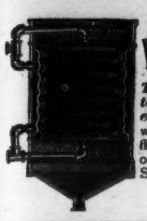

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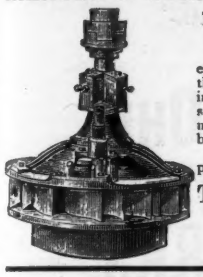

This wheel is acknowledged one of the best on the market. Has valuable improvements in the construction, which are commanding the attention of buyers.

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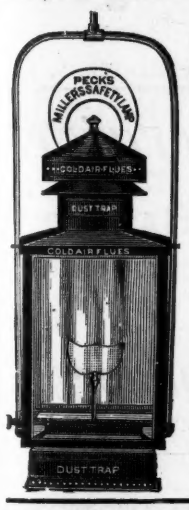

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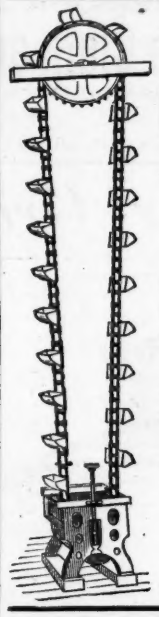

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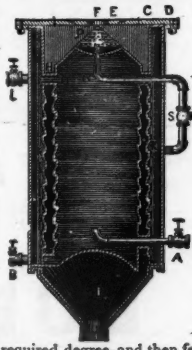

Patented Sept. 27, 1870. Re-issued Aug. 31, 1880. Re-issued May 17, 1881. Patented Feb. 28, 1882.

Millers please examine the 1st and 9th claims and then ask yourselves or attorneys if all other machines used for the *same purpose are not direct infringements.*

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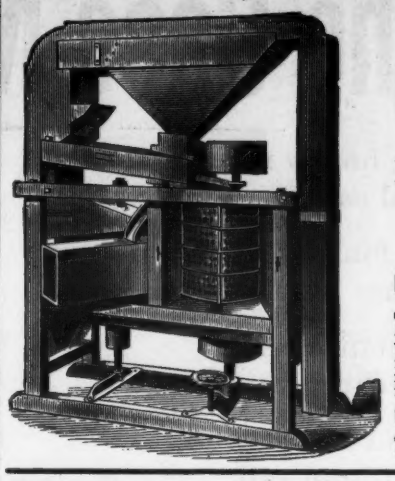

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	11.66	51.96	.8564
15 "	18.34	29.36	.8705
	18.10	29.22	.8808
15 "	18.06	30.17	.8932
	18.08	30.12	.8849
2[illegible] "	18.22	48.75	.8532
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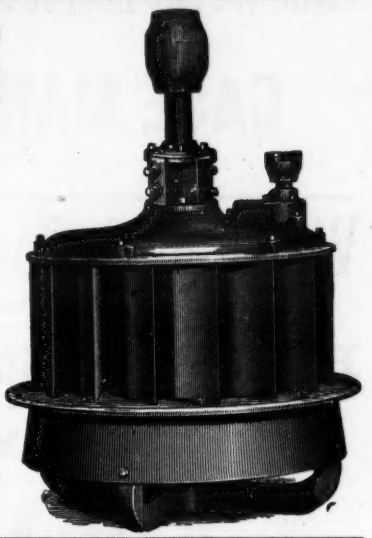

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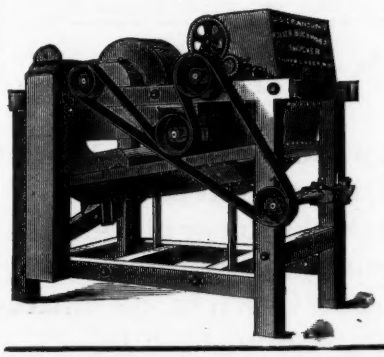

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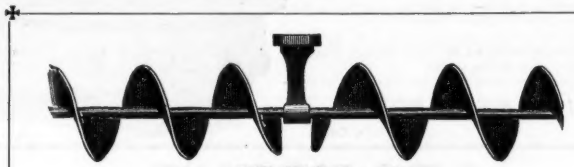

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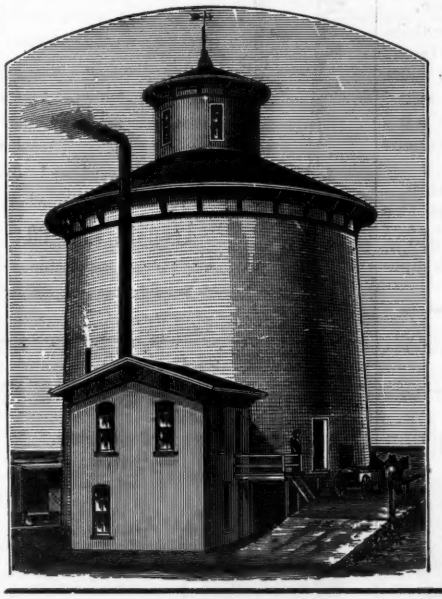

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